

**THE CHALLENGE OF EDUCATIONAL
DISADVANTAGE IN A KNOWLEDGE ECONOMY
– A CASE STUDY OF WATERFORD CRYSTAL LTD,
1990-2006**

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CRYSTAL LTD.**

1990-2006.

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**This thesis is submitted to Dublin City University in fulfilment of the
requirements for a Ph.D. Degree**

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Volume 1 of 11

DECLARATION

I hereby certify that this material, which I now submit for assessment on the programme of study leading to the award of Doctor of Philosophy is entirely my own work and has not been taken from the work of others save and to the extent that such work has been cited and acknowledged within the text of my work.

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ABSTRACT :

The PhD research question '*how can educationally disadvantaged employees gain the necessary qualifications to secure employability status and contribute to competitiveness in a knowledge based economy*' is addressed through case study research using Waterford Crystal Ltd, an indigenous, manufacturing, exporting company from 1990-2006 as the context. Both the company and the economy paralleled the transformation of its manufacturing bases to compete in the global economy during this period.

The researcher as Education, Training & Communications Manager in the company was a participant, observer. As an in-dweller he developed a unique set of insights and experiences on how educationally disadvantaged employees coped with the change process.

There are over 1,000 employees in the company and 600,000 in the national economy without a Leaving Certificate. The company responded by investing heavily in educating and training its workforce with particular attention paid to removing the barriers and providing customised progression routes for educationally disadvantaged employees.

In high value, knowledge based work it is individual competencies that become the limiting factor in achieving growth, not new technology or the market. The study contains eighteen recommendations on how the educational deficit of 600,000 educationally disadvantaged employees in the economy can be redeemed.

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Forfas.

Honeywell Ireland.

Irish Management Institute.

National College of Ireland.

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Chapter 1: Introduction

The crucial organisation issue of our time.

This thesis focuses on exploring and analysing the issues around educational disadvantage in a knowledge-based economy using Waterford Crystal, 1990-2006 as a case study to inform our understanding. The challenges posed to and by educationally disadvantaged employees in the Irish economy today is an issue of the utmost importance to the economy and society. A coalition of key stakeholder groups, involving employers, government, education and training providers and employees is required to activate this dormant potential to help sustain current economic performance.

In the current global business environment, a unique and sustainable competitive advantage are the skills and capabilities of the Irish workforce. As the world economy increases in size, wealth and business opportunity, it is essential that in Ireland, the most open of economies, the government acts quickly to up-skill the national workforce. Based on the findings and conclusions from the study, four main recommendations supported by fourteen support recommendations are forwarded on how best to eliminate this educational deficit.

In the Foreword of The National Competitiveness Council Report (November, 2005), An Taoiseach states that ‘In the global knowledge – based economy, we increasingly recognise human talent and creativity as the key resource and the only sustainable source of competitive advantage. How we unlock and further develop this talent and creativity in our workplaces has therefore become the crucial organisational issue of our time’.

In the ten years to 2004, Irish gross national product (GNP) growth averaged an increase of over seven percent per annum in real terms, more than double that of the US and close to triple that of the Euro zone. To maintain this level of performance in a changing competitive environment, a further upgrading of workforce skills and competencies is necessary. This upgrading strategy has critical implications for those who are educationally disadvantaged and who need to establish a capacity to train, learn and perform in a new knowledge economy.

The jewel in the crown

In planning the thesis the researcher decided to case study Waterford Crystal which had, in the period 1990-2006, both upgraded the skills and capabilities of the workforce and restructured its operational base to gain a competitive edge in the market place. Case study research methodology is ideally suited to facilitate an exploration of human resource issues in a rapidly changing business environment.

Waterford Crystal Ltd has since the 1950's represented the jewel in the crown of Irish industry. It was one of a very small number of original Irish international brand names. Its role as an international manufacturing success story in exporting quality product since the 1950s has been an inspiration and trend setter for many leading Irish entrepreneurs in the following decades. Its contribution to Irish industry and in building the self-confidence of Irish business leaders and people has been fully acknowledged by leading politicians, economists and historians. Business & Finance (10th April 1997 p28) cover story quotes that 'Waterford is undoubtedly one of the handful of genuine Irish brands to have been created since the Second World War'.

Waterford exports 87% of its product. It has competed at the high end of the international premium gift market for over fifty years since it re-opened in 1947. Despite a number of crises, it has retained its pre-eminent position as a leading international brand. It is by far the largest and most prestigious manufacturer and marketer of premium crystal gifts in the world. It holds 50% of a declining premium crystal gift market in the US today. This is a tribute to the enduring quality and appeal of a magnificent range of products, which has won the loyalty of so many customers worldwide.

Over the past fifteen years Waterford Crystal paralleled developments in the economy in restructuring and improving its competitive base. The company and the economy compete at the high value product end of the global economy. They strategically operate in the high technology, knowledge sector where intellectual capital is a critical competitive factor. In this sector there is a huge reliance placed on the skills of employees to gain sustainable competitive advantage.

This research study highlights the many difficulties and opportunities facing employers, employees, education and training providers and government in transforming the skill portfolios of employees in order to facilitate the transformation to competitive, technology and knowledge based operations.

Waterford Crystal moved beyond centuries of best practice in craft based manufacturing to a more agile and customer responsive technology based model in the 1990s. In implementing this new operational model it upgraded the skills and

competencies of employees, in particular, those who were educationally disadvantaged. The study captures the key restructuring and reengineering programmes and the human resource strategies applied to underpin the viability of business.

The case study research approach captured the most salient features of transformational change. It enabled the researcher to record and examine at first hand, as an in-dweller, the many complex realities facing employees and other stakeholder groups. The findings and conclusions can help to inform the approach and design of future national employee development initiatives.

In Waterford throughout the 1960s, 1970s and 1980s over 1,000 people joined the company as apprentices (glassmaking crafts) and as general and semi-skilled operatives, between the ages of 14 and 16 years without having completed second level education. As their jobs and skills became obsolete from the late 1980s onwards they were faced with a limited set of employment options. There was a need for the company to change the skill base to deal with a new knowledge, technology based manufacturing operation. Employees needed then to return to education and gain the necessary qualifications to work on new knowledge, technology concepts, processes and systems and also retain employment status.

The experience of employees in combining work, college and family responsibilities while engaged in a pressurized working environment offers many insights and solutions on employee education that could be replicated with success at national level.

Four main and fourteen support recommendations on how best to redeem the education deficit of the educationally disadvantaged at national level are included (see Chapter 9, pp 348-388).

Five pieces of additional research are recommended to address gaps in information needed to plan a comprehensive response to educational disadvantage in the workforce. (see Chapter 9 pp389-392).

Continuous change.

The research thesis tracks how educationally disadvantaged employees facing skill obsolescence set about redeeming their educational deficit in the 1990-2006 period. There are currently 600,000 educationally disadvantaged employees in the Irish economy, (see Figure 11 p125). The main objective of the study was to explore the issues restricting access to education for employees with extensive industrial experience but lacking the necessary education base to train in higher order skills in the new economy.

The Higher Education Authority (January 2006) states that the aim of the National Office is to not merely secure equity of access for groups now under-represented but also access to the highest quality of education. Currently 1% of employees with no qualifications, 5% with lower secondary education and 10% with a third level qualification participated in formal education in the previous 12 months, NESF (January 2006 p96).

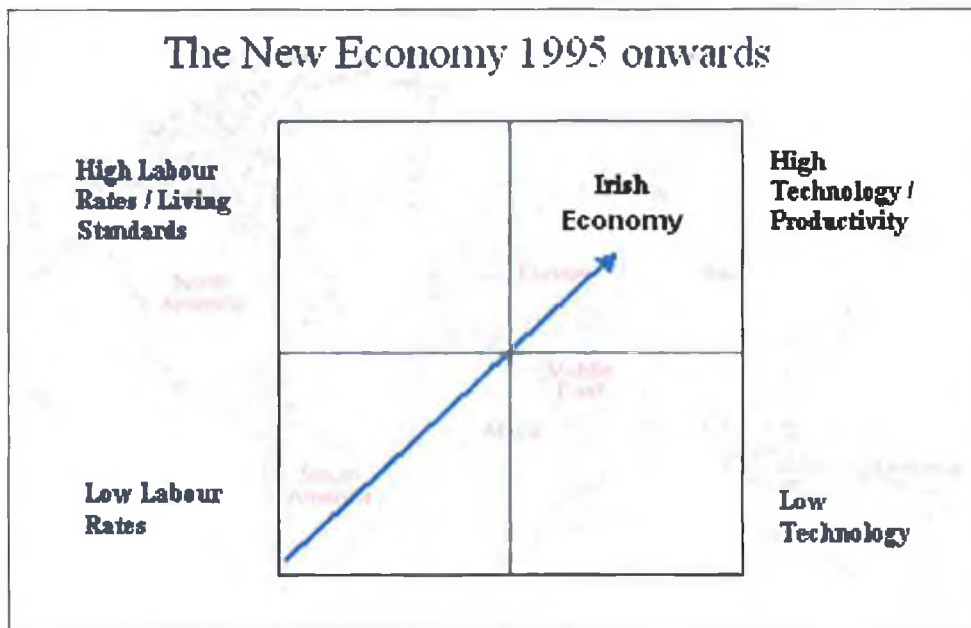


Figure 1. The Irish economy competes in high value segment of the global economy.

The Irish economy and Waterford Crystal compete in the high technology, high wage sector of the global economy. The advanced economies competing in this sector are those that demonstrate the greater commitment to developing a high skilled and qualified workforce that has the capacity to gain the highest market share and achieve a sustainable competitive edge.

At organisational level under several rationalisations and restructurings, the surplus employee adjustment process was managed extremely well in Waterford Crystal. As low skilled jobs become obsolete surplus employees through planned up-skilling programmes gained the necessary qualifications to move into the new skilled, technology-based jobs coming on stream. Redundancies were minimised. Cash was conserved and used for alternative investment purposes such as up-skilling the workforce. Huge reservoirs of technical, craft knowledge were retained in the

organisation. Restructuring programmes were accommodated as employees adapted to change using their new skill sets to best effect.

The educationally disadvantaged in Waterford Crystal had built up a wide range of skills and experiences: a proven capacity for hard work, an ability to adapt to change and more critically a successful track record in helping to drive the economy up the value chain. Indeed the success of the Celtic Tiger economy confirmed the national strategic direction taken to compete at the high value end of the global economy.

Employees with a good basic second and third level education were more in demand in the new economy. There were many examples of skill shortages which had to be addressed by attracting migrant labour to fill the vacancies and enable the economy to grow and prosper. IBEC (2004) confirmed that international investors were constantly searching for workforces that were best prepared for an ever changing commercial environment.

The success of native educationally disadvantaged employees in helping to create the new economy paradoxically undermined their security of employment as many of their old jobs and skills became obsolete. Many educationally disadvantaged employees were displaced as manufacturing, in particular, shed jobs due to competitive pressures from low cost economies in Eastern Europe, China, India and Korea. The vast majority of the new jobs being created require higher skills and a basic second level education to master the new complexities.

Many of the qualities and characteristics that helped achieve recent economic success remain as prized assets. There is though a need to build on new skills and qualifications relevant to the new workplace. The limiting factor in future economic growth of educational disadvantage for the 600,000 has to be removed.

As the white paper on adult education, Learning for Life (2000 p127) states ‘a highly skilled workforce, well educated and trained, is a pre-requisite for the maintenance of competitiveness and ensuring the capacity for adaptability and change’.

Defining key terms.

There are four terms repeated throughout the study that require an early definition. These are ‘**educationally disadvantaged**’, ‘**new economy**’, ‘**education**’ and ‘**training**’.

The term ‘**educationally disadvantaged**’ in this study means those in employment who have not completed second level education.

FAS (2005 p21) helps to broaden our understanding by defining two levels on the National Qualifications Framework that are relevant to the study.

Level 4 (Junior Certificate). Independence is the hallmark at this level. Learning outcomes at this level correspond to a growing sense of responsibility for participating in public life and shaping one’s own life. The outcomes at this level would be associated with first –time entry to many occupational sectors.

Level 5 (Leaving Certificate and Post Leaving Certificate). Learning outcomes at this level include a broad range of skills that require some theoretical understanding. The outcomes may relate to engaging in a specific activity, with the capacity to use the instruments and techniques relating to an occupation. They are associated with work undertaken independently subject to general direction.

For the purpose of this study the Leaving Certificate or Level 5 under the National Qualifications Authority Framework is the education standard required to enable employees to be trained in the knowledge economy. This standard facilitates engagement in knowledge, technology based work, access to third level education, and lifelong learning in the knowledge economy. It provides employees with the means of competing for the new higher skilled jobs coming on stream and it provides the confidence necessary for them to independently carve out an employable higher order skills portfolio. It is a desired level of education that best open the doors to further education and a wide range of career choices.

The term ‘**new economy**’ means the step change made in the mid 1990s to a knowledge, technology based economy. The change to a knowledge economy was driven by a number of factors including:

- Irish government’s decision to move up the value chain and compete in the high technology, high cost, highly competitive area of the global economy.
- Winning of a significant share of foreign direct investment in high value activities and the introduction of new world- class business standards and practices.

- Massive transfer of funds from the European Union enabling the modernisation of Irish industry and infrastructure.
- The growth of services with knowledge based jobs.
- Development of sophisticated supply chains leading to one- world operations.
- Massive investment in education, health, tourism/hospitality and transport services.
- Establishment of Science Foundation Ireland to promote research, development and innovation.
- Loss of many traditional manufacturing jobs and skills with replacement jobs in higher value technology/knowledge service jobs and skills.
- Wholesale restructuring and re-engineering of indigenous industry.
- Development of a young, well educated workforce.
- These developments were set in the context of changes in the global economy, which included:
 - Rapid expansion of global trade with the removal of borders and barriers.
 - Expansion of the European Union and the fall of communism.
 - Emergence of high-powered communications and engineering technologies including the Internet.
 - Emergence of China, India, Russia and Eastern Europe as economic powers in the free market economy.

Both global and national developments synchronised, challenging every exporter to adapt to the new order of business competitiveness. This new complex business environment provided many incentives for entrepreneurial activity. Company

registrations doubled in number since 2000, from 121,000 to 240,000, which is a dramatic example of the transformation in economic activity, entrepreneurship and has led to full employment.

The term '**education**' means the acquisition of a broad base of knowledge involving reasoning, analytical and decision-making skills. The emphasis is on understanding.

The term '**training**' means the learning and development of specific task related skills and competencies for circumscribed roles. The emphasis is on doing.

Both terms, education and training, are but two sides of the same coin. Education relates to the broader context of knowledge assimilation and creation. The development of competencies in knowledge-based work requires an education that facilitates understanding of theory, principles and concepts and the acquisition of the higher order skills. Training in cognitive skills requires educated minds in order to develop and apply higher order skills needed by industry and services operating in a growing competitive business environment. Winch (1995) explains that 'education concerns the long-term preparation of an individual for life. Training is usually concerned with the shorter-term acquisition of abilities, attitudes and dispositions'.

The Irish economy is global in outlook, is export led and is moving to a predominantly knowledge, technology base. This new economy rose like the phoenix from the ashes following decades of poor economic performance. National Competitiveness Council (November 2005 p2) said that in the ten years to 2004, Irish gross national product (GNP) growth averaged over seven percent per annum in real terms more than double that of US and close to triple that of the Euro zone.

Many leading international economists and publications have praised the emergence of the Celtic Tiger economy and described it as an economic miracle. Ireland has become a role model for many other countries in transition. The economic structure and performance, which delivered success and affluence, has a number of underlying weaknesses that need immediate attention. One such weakness is the significant number of (600,000) educationally disadvantaged employees whose ability to impact on future performance is reducing in influence as jobs become more complex. They represent under- utilised potential ready to be tapped into through access to appropriate education and training programmes.

Larsson (1996) maintains that workers now perform a range of tasks rather than pass the job on from one to the other. Enterprises are being transformed, from hierarchical and complex organisation with simple jobs to less hierarchical, more customer-oriented and more decentralised and network oriented organisations with complex jobs. As a Director General in the European Commission he was making the case for lifelong learning and the need for all employees to have access to education and training on a continuous basis.

Figure 2, captures the major changes that occurred over the past decade making the business environment more global and competitive and challenging over the past decade. Business organisations had to respond by restructuring and rationalising in order to retain their competitive edge. The employees became the key enabling force in the new knowledge, technology workplace. Their skill base had to be improved to deal with the many new concepts and issues requiring a higher level of competence.

A Complex Business Environment

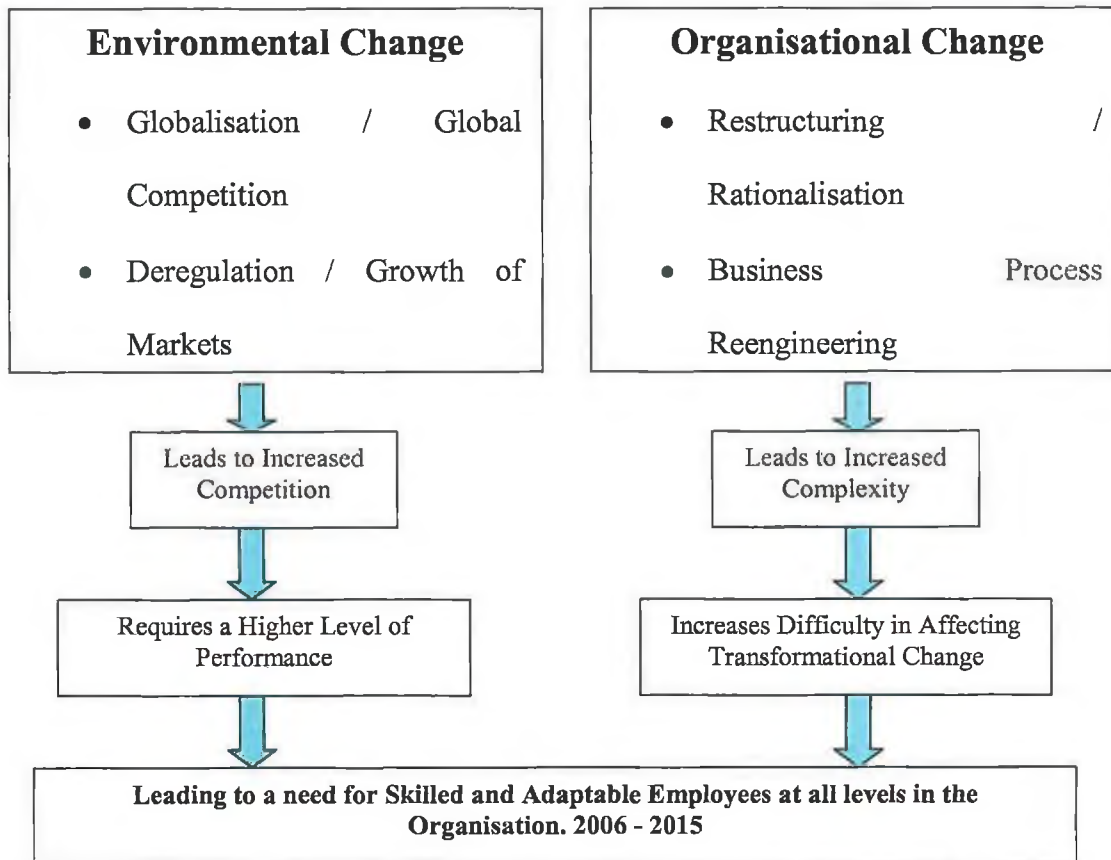


Figure 2 The growing complexity of business operations requires a skilled workforce.

The new manufacturing organisation

Time Magazine (14th November 2005) states that companies can no longer innovate in isolation. Innovation in the 21st century is all about being open and collaborative, as firms team up with other companies and with universities and research institutes at home and across borders.

Employee responsibilities involve developing the capability to participate at a higher level. Their influence on the efficiency of a fast moving supply chain whose weakest link can undermine customer service deadlines is increasing in importance. Many of the low skilled menial tasks have been re-engineered out of the system with the

inclusion of new technologies. Employee groups are involved across the organisation with external agencies creating improvements and moving closer to the customer all of the time.

T&D (February 2003) informs us that these days many organisations are structured to optimise distributed intelligence. Alliances, networks, communities of practice, matrix structures, and participative practices are all ways to draw more fully on the knowledge and creativity of more people in and around the organisation.

The New Work Organisation



Figure 3 The new-networked, agile organisation

Figure 3 above is a representation of the change from hierarchical with clear boundaries to a flatter, integrated organisation with more permeable boundaries. The

new manufacturing organisation is engaged with external suppliers, customers, on joint research projects, international alliances, joint ventures, outsourcing and off-shore projects. Manufacturing companies are links in commercial supply chains, which join the original concept to final delivery to the customer. Employees now work across and beyond the organisation in the new world of work. The demarcations of the past are irrelevant in the current competitive environment.

The employee as a problem solver.

Blanchard et al. (1999 p5) report that when asked what they want from employees today, business leaders almost universally respond, 'We want people who are problem solvers, who take initiative and who act like they own the business'. The new restructured organisation provides many opportunities for employees to engage in problem solving on teams, in projects, in research and on the ground in their own work areas. Employees are encouraged to be proactive in securing productivity gains, improving quality and customer service targets. McGill & Beaty (1995) point out that the learning in action is holistic and developmental.

In Waterford Crystal the change from adversarial to collaborative industrial relations paved the way for employee participation in change and learning projects. Employees create value and achieve competitiveness. They influence the speed and effectiveness of change. They control the levers and levels of productivity. They constitute a unique and appreciating asset. Unlike many other assets they appreciate with investment and age in a knowledge, technology environment in which brainpower is the key resource.

There is a need for them to progress the development of their skill base at least at the rate of change. The current pace and depth of change is so great that employees need to use their own initiative in many different situations if the best results are to be obtained.

In a full employment economy the educationally disadvantaged in particular need support in retaining employment status until retirement age. Their hard earned experience and tacit knowledge needs the reinforcement of a Leaving Certificate standard of education or its equivalent enabling them to continually train and learn.

Customised education programmes with proper supports properly marketed would attract the interest of large numbers of employees resulting in immediate improvements in productivity and competitiveness. A 'one step up' educational experience for a wide range of employee categories, intelligences and interests would prime the pump of economic and social progress further over the next decade.

High performing, high-wage economies strive for gains in productivity to enhance their competitive ratings. The expert use of knowledge and technology underpins productivity gains and leads to economic and societal progress. The educated employee and citizen has greater scope for contributing positively to society and the workplace. Access to continuing education and training will enhance skills and knowledge sets, improve competitiveness and create an inclusive and more equitable society benefiting all stakeholder groups.

A broadly based skills portfolio enables employees play a more proactive and interventionist role in their workplace. The best expert is the person doing the job. The most cost effective place in which to solve problems is at source. In the new economy employees are expected to solve problems at source and take on a broader set of responsibilities. A central tenet of competitiveness is the presumption of the availability of skilled employees capable of higher productivity at lower unit cost.

The introduction of new hardware technologies, systems, processes, products and work practices are dependent on the innovative and creative capacities of employees to optimise their impact. Many of these technological based installations are complex and costly. Skilled employees exploit the full potential of this equipment.

In a national context many people joined the workforce at a young age at a time of little educational opportunity, during the 1960s, 1970s and 1980s. Personal and domestic situations often dictated their level of education. For many families and individuals, earning a wage was the more immediate need. In the new economy these same employees are faced with returning to education to eliminate gaps in their knowledge base that is preventing them from realising their potential and the competitive base of the business. As Crosby (1984) states, everyone has to have a common language, the skills to do the job, and an understanding of each one's personal role in keeping the wheels of the company moving. It is vital that in an integrated, fast moving and team-based workplace in which knowledge and technology based concepts dominate, all categories of employees are trained to share the responsibility for managing it.

Pre 1990	1990 – 2005	2006 - 2015
Knowledge of job	Knowledge of process	Knowledge of business
Low Formal education	Good basic education	Good second level education
Respond to direction	Demonstrate initiative	Intervene and improve
Fixed repetitive work	Limited interchange ability	Know all jobs in process
Quality Conscious	Right first time	Continuous improvement
H&S, mgt responsibility	Safe place – safe person	Observe, act & improve
Member of team	Team member	Shared responsibility/ results
Job focused	Customer focused	Customer responsive
Information as required	Access to information	Open/shared information
Point out the problem	Examine/assess problem	Solve problem
Communicated to	Questions & answers	Become a communicator
Trained	Educated	Independent learner
Department team	Process team	Supply chain team member
Dependent approach	Independent approach	Interdependent approach
Single skilled	Multi -skilled	Portfolio of skills
Employed	Employable	Work for life
Accepting	Questioning	Initiating

Figure 4 Only skilled jobs exist today.

Figure 4 highlights an upward movement in skills and qualifications required by general operatives in the large exporting organisations. A major change in the role and responsibility of general operatives has taken place over the past decade. The new role requires a more proactive approach requiring improved qualifications as knowledge permeates every process and task in business organisations.

Profile of researcher.

The researcher has been employed by Waterford Crystal Ltd for forty-seven years. He joined the company as an apprentice wedge cutter at fourteen years of age in 1959. He qualified and then progressed to become a master craftsman after ten years. From 1979-1987 he served as senior shop steward of the cutting department, which

included more than 600 cutters, engravers and sculptors. He was involved in resolving many issues of concern to employees and company. His responsibilities included representation on benefits and conditions, personnel development, the introduction of new structures and technologies and adaptation to change programmes.

In 1988 the researchers was appointed Communications Officer following the first major rationalisation in the company in 1987 in which over 1,000 employees opted for a voluntary parting package involving redundancies and early retirements. His main task was to build a communications strategy and infrastructure to establish three-way communications links between management, employees and union representatives. The main objective was to create a business literate workforce that appreciated and understood the need for change and capable of achieving a new level of competitiveness.

In 1990 he was appointed Education, Training and Communications Manager. His main task was to provide access to education and training for every category of employee company-wide and encourage mass participation. There was an urgent need to develop a multi-skilled, flexible and adaptable workforce to replace a predominantly single skilled, rigid, institutionalised workforce.

In May 2005 he officially retired but was retained on contract in the role of Special Projects manager. He currently represents the company and private industry on:

- Forfas: Expert Group on Future Skills Needs.

- Inter- Agency Forum set up by Waterford County Council to provide development and employment opportunities for the 400 employees made redundant following the closure of the company's manufacturing plant in Dungarvan.
- Department of Enterprise, Trade & Employment In-company Training Measure Project that provides educational opportunity for educationally disadvantaged employees in Waterford and Dublin.
- Chairman of Waterford Local Economic Development Company (LEDC) a project to regenerate Ballybeg a local disadvantaged community in Waterford City and who are sponsoring, recreation, education and enterprise projects there.

From 1990-2006, he was a member of the senior management team that negotiated ten major industrial relations agreements aimed at improving the competitive base of the company. The agreements established a platform for change and competitiveness and a context for the implementation of new education and training strategies and plans. Through his work he developed many insights into the difficulties faced by educationally disadvantaged employees.

As an adult student he attended courses over the years with six education providers. These included the Central Technical Institute in Waterford, Waterford Institute of Technology, University College Dublin, University College Cork, Dublin City University and a distance learning programme with the Association of Chartered Certified Accountants (ACCA). He personally experienced the barriers and difficulties faced by employees on return to education.

He also held many positions of responsibility on enterprise, education and training bodies at local, regional and national levels. These included FAS, Waterford Institute of Technology, South- Eastern Regional Authority, Enterprise Ireland, Leader Partnership, both County and City Councils and the Department of Enterprise, Trade & Employment. He worked on joint industry/education projects involving Waterford Institute of Technology, University College Cork and the National College of Ireland. Internationally he engaged with European and American enterprise and education institutions. His long experience of dealing with competitiveness and employability issues informed the design of the research study. As an observer participant his extensive formal and tacit knowledge influenced the choice of research methodology, research analysis, the drawing of conclusions and the making of recommendations.

In planning the PhD process the researcher engaged colleagues on management and on the training team for validation purposes at all stages. He examined a wide range of national and international trends and developments on best practice responses to industrial change, employability and competitiveness. He analysed a number of critical themes on globalisation, competitiveness, employability, education and training and employment in the future. Four main and fourteen support recommendations were framed and aimed at redeeming educational disadvantage, securing employability status for employees and competitiveness for industry. The recommendations were referred to two peer professionals for validation. Figure 5 below includes the rich tapestry of perspective in which the researcher engaged with throughout the 1990-2006 period.

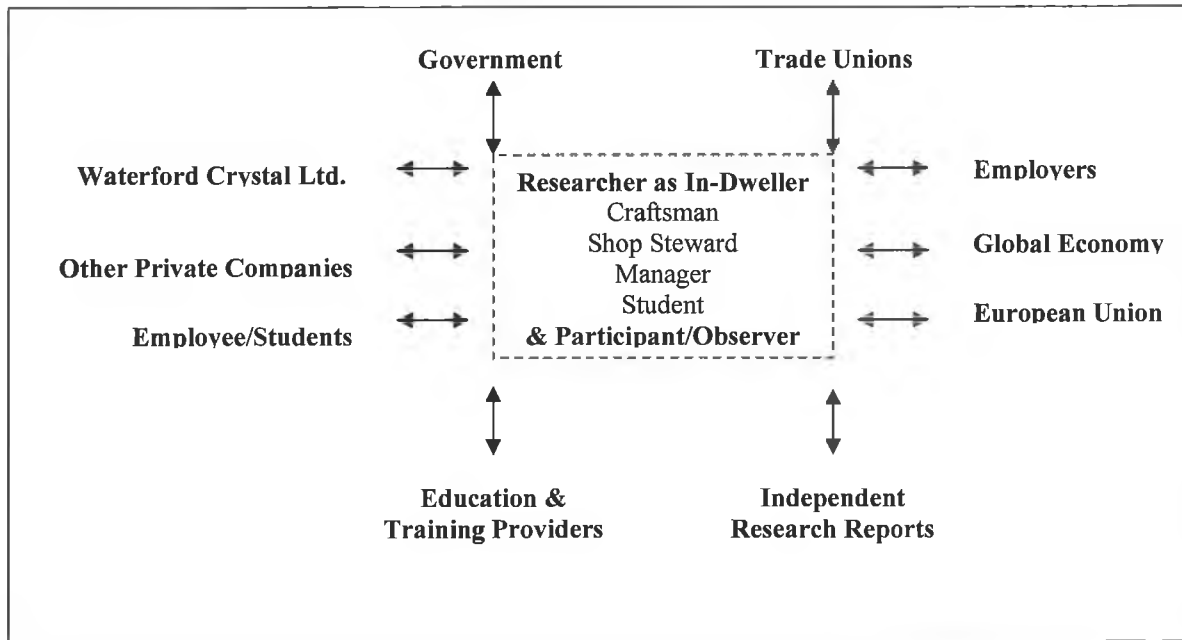


Figure 5 Overview of Researcher's Perspectives.

The researcher with the training team initiated and developed many access programmes for the most disadvantaged employees. As master craftsman he was a trainer and educator of apprentices. As a shop steward he was a problem solver, negotiator and representative. As education, training and communications manager he advocated the value of education and training in particular for the educationally disadvantaged. Figure 5 represents the varied roles of the researcher and the network of enterprise and educational interests he engaged with throughout the 1990-2006 period.

‘Finding the Other Way’

A pilot study and report ‘Finding the Other Way’ (2005) produced by the researcher over a twelve- month period in 2004/2005 forms a key section of the overall Ph.D. study. The pilot process improved the researcher’s skills in interviewing and in analysing the findings. He interviewed 112 employees who had successfully returned

to education through a variety of routes. Findings from the report highlighted the massive dormant potential which is currently lying idle. The findings from phase three influenced the design of phases four and five of the research project.

The level of frustration experienced by employees in coping with complex work situations without adequate skill sets was very revealing. There were particular difficulties with highly skilled craftsmen with low formal education who had been previously very successful in the old economy. Their much admired skills were becoming obsolete and the blow to their morale and self-esteem was painful. It was a big challenge for them to have to walk away from their crafts and rebuild new careers. Many employees were motivated to evaluate their future employment prospects and take the necessary steps to gain new qualifications that would enable them achieve their new choice of career.

‘Finding the Other Way’ in collaboration with employees identified the barriers and supports that both hindered and helped the adaptation of the workforce to industrial change in Waterford Crystal from 1990-2006. The profiles (see appendix B pp2-325) remain as a testimony to the dedication of so many employees who, having felt the fear returned to education. All of them stated it was the best move they ever made. In hindsight they regretted not having returned to college much earlier.

Handy’s sigmoid curve concept

Handy (1994, pp49-64) argues that organisations can best ensure continued growth and success if steps are taken to regenerate and build a second curve while riding the crest of the current curve. He argues that it is a dangerous folly to assume that the

ingredients and formula that achieved the initial success is sufficient or appropriate to maintain it in the future.

Handy advocates that the second curve should begin at point A, i.e., at the crest of the curve (see figure 6, below). By delaying action until point B the capacity of the organisation (or economy) to take remedial action has diminished. The same resources are not available as diminishing profits and a more difficult environment reduce options for both company and government.

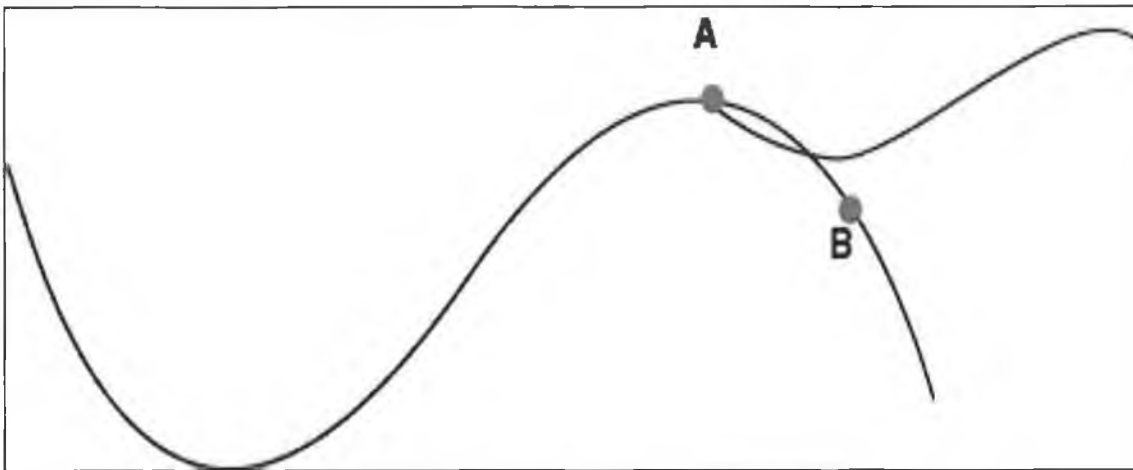


Figure 6 Planning for the next step-change in performance at point A. Handy (1994 pp49-64).

As the economic cycle dips, the opportunity to progress areas of discretionary spend diminishes. In some organisations education and training is a 'nice to have' investment. In difficult economic times discretionary spending in education, training and advertising are usually contracted. Waterford is an outstanding example of this phenomenon. Training as a percentage of payroll was reduced from 6% of payroll in the 1995-2001 period to less than 1% in 2006 due to a serious decline in profit performance. Many other areas of activity suffered a similar fate.

This reduction in investment in education and training leads to increased difficulties as employees struggle with new concepts and disciplines in more pressurized circumstances. As was proven in Waterford Crystal the strategies and leadership that delivered such outstanding success for Waterford Crystal Ltd in the 1960s, 1970s and 1980s was not appropriate to dealing with the competitive challenges of the 1990s. In the early 1990s a new management team with new strategies and plans were appointed to turn the company around which they duly did.

The formula that created the Celtic Tiger Economy in the 1990s will certainly not be sufficient to maintain it over the next decade to 2015. Many of yesterday's solutions often become tomorrow's problem as the context changes. What was appropriate and successful in the old environment is likely to be unsuited to meet the needs and conditions in the new one. While individuals and organisations may not want to change a winning formula and team, the business environment will change dramatically raising new challenges requiring new solutions. The only guaranteed constant in managing a business today is change. Work processes, systems and skills are subject to adapting to changing, competitive environments. Macro economic conditions are constantly in a state of flux.

Serious investment in the re-education and re-training of employees without Leaving Certificate standard of education has to begin in 2006 if disadvantaged employees, 'wealth creators' are to realise their potential and the economy is to benefit. If ten percent of educationally disadvantaged employees were helped to eliminate the deficit 60,000 higher qualified employees would become available to fill skilled jobs and would enable a back fill process improve the lot of the remaining lower skilled as they

moved up in tandem. The process could be repeated until all those willing and able were educated and trained.

Irish industry and the Irish economy are currently performing exceptionally well. The resources and funding are currently available to address the needs of this long neglected group of wealth creators. The prize for the economy, society, employer, government and employee is substantial over the short and long term. If a percentage of the capital used to attract new industry, development facilities and new technologies into the country was set aside for employee education and training the problem would be solved over the next ten years.

A radical response required.

The political will is needed though to introduce a radical and far seeing national employee development initiative on par with other seminal initiatives of the past such as:

- Introduction of free education in 1967
- Establishment of the Institute of Technology Sector in the 1970s
- Entry into the EEC in 1973
- IDA strategy to attract foreign direct investment into Ireland in the 1980s and 1990s
- Development of the Social Partnership Model in the late 1980s
- Joining the European Monetary Union in 1999

A substantial investment in employees with low qualifications and skills but with significant industrial work experience will establish a new economic and social dynamic. If the educationally disadvantaged are trained as independent learners they

will become a powerful presence in the economy for the remainder of their working lives and at a time of current skilled labour shortages. Government controls the main education and training resources, holds a global business perspective, appreciate the needs and connects directly into every employer and employee in the state. It is in pole position to re-invest a proportion of tax revenues into supporting employee development. The current fragmented employee education and training system ignores the needs of the majority of employees and under- utilises costly resources.

Improved skill levels secure employment and maintain the flow of tax revenues to the exchequer. Improved economic performance and revenues will secure future investment in infrastructure, research and development, health, education and transport. As Ireland becomes a net contributor to the EU post 2006 the improved skill levels will maintain the competitiveness of the economy and long-term prosperity. A radical initiative on employee development an appreciating asset has become an urgent priority.

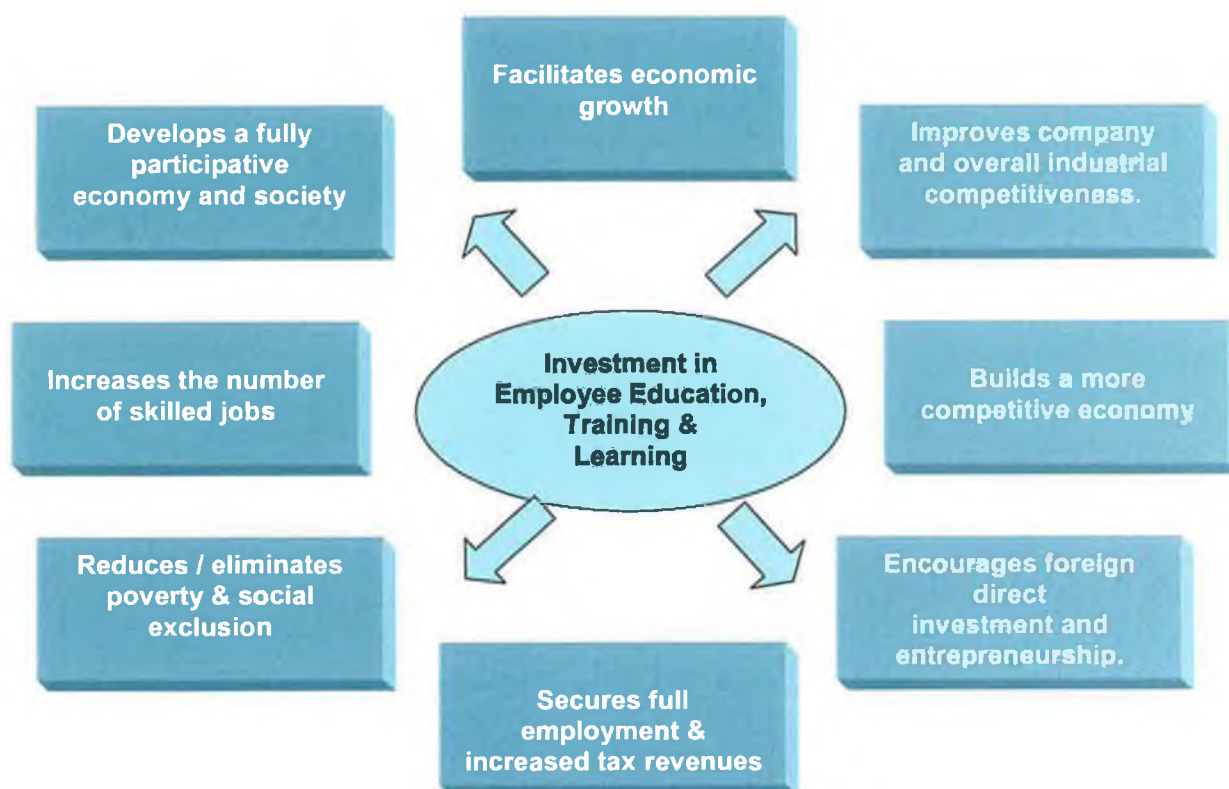


Figure 7 Employee education and training is a national priority.

Figure 7 represents the virtuous cycle of added value created by investment in education and training which benefits the economy and society. The many economic and social benefits encompass all the main stakeholder groups. It has a major beneficial influence on the development of an equitable and inclusive society. Education and training are the enabling mechanisms of change.

Learning for Life – White Paper on Adult Education (2000 p 127) states that ‘a highly skilled workforce, well educated and trained, is a prerequisite for the maintenance of competitiveness and ensuring the capacity for adaptability and change’.

A representative case study.

The diverse profile of the workforce when added to the growing complexity of work and the informed experience of the researcher as an in-dweller were key determining factors in deciding to case study Waterford Crystal. In the company, the high skilled craftsmen and low skilled general and semi-skilled workers were educationally disadvantaged. He was mandated to lead the campaign to redeem this major educational deficit. Over the previous sixteen years he has developed a wide network of professionals and many insights into the issues and barriers.

In the period 1990-2006, Waterford Crystal Ltd shared many change and development similarities with the Irish economy the country and company:

- Exported over 80% of its product.
- Competed in the global economy at the higher end of the value chain.
- Restructured and re-engineered its processes, systems and products to gain a competitive edge.
- Up-skilled the workforces to acquire more relevant qualifications.
- Improved productivity through mastering the art of innovation and technology, knowledge management.
- Transformed manufacturing and services operations and competitiveness throughout the 1990s.

Global corporations locating in Ireland set global standards in competitiveness and in world-class management techniques which stretched the capacity of Irish business and employees in their attempts to emulate such standards.

Thesis overview.

The literature review helped define the research methodology and the approach to the research phases. The review included the trawling of a wide spectrum of information sources involving relevant books, journals, magazines, research papers, reports and information from the Internet. Global, national and local perspectives were collated and analysed from authoritative company, Irish, UK, EU, US, Japanese and other international sources.

The research findings and conclusions provided sufficient grounded evidence from which to design the recommendations. The recommendations were developed out of a deep knowledge of dealing with educational disadvantage in the workplace and the learning gained throughout the research. The mass of educationally disadvantaged employees in Ireland share many common experiences and barriers. The Irish context was studied in great depth. Other relevant factors included globalisation, competitiveness, industrial change, the acquisition and management of knowledge, employee training in advanced skills, employability, personal motivation and employee competency as a key source of sustainable advantage.

In analysing stakeholder responsibility and input, research papers and reports from government, trade union and employer representative bodies were studied. Very little research information on the provision of assistance for educationally disadvantaged employees in the private sector was available. There was a huge amount of research information available on education as pertaining to the classroom and full-time student population. There was little available on the education of employees and their circumstances.

There were many references suggesting a stalemate in the contrary views on responsibility and accountability for the education for employees. A common view was that the employer should maintain the job related skills and qualifications of their employees. Another view was that employees should take responsibility for their own education as they were regarded as the main beneficiaries. There was little evidence found in official documentation for government to subsidize training and education in the private sector. Private industry should regard employee development as potential profit improvement and fund it as a priority. Europe regarded the subsidisation of employee education and training in private industry as unfair competitive practice in overall European terms. FAS the national training agency has recently taken new initiatives to part fund nominated nationally accredited programmes for people at work. It is a tentative step in that direction only.

A major gap in employee education and training exists in the case of the educationally disadvantaged. There is no way the current stand off position on employee education and training will suffice to remedy their situation. Current philosophical and ideological barriers created by the policy makers are now very short sighted. The operational imperatives of the new economy require a radical re-appraisal of old approaches. The glaring anomaly under which educationally disadvantaged employees operate needs to be addressed. Many of them never got a first chance secondary education and some had a very negative experience in primary and secondary education.

The current educationally disadvantaged represent the best and most immediate source of adding value to the intellectual capacity of the economy. Every improvement in their educational qualifications can immediately impact on productivity, quality and customer service in the workplace. Education and work runs in parallel and the transfer of learning is immediate and in both directions.

Some effort has already been made by employers, FAS and third level education in developing workforce skills and qualifications. The participation rate remains at an abysmally low figure of 7.2%. Recommendations have been made in many official reports throughout the 1990s and in particular since 1996, the European Year of Lifelong Learning that low skilled and educated employees should receive special attention. There is little evidence of significant progress in this area apart from the piloting of a number of government and EU training education and training initiatives for disadvantaged groups.

The Enterprise Strategy Report (July 2004 p79) recommended a 'one step up' for all employees with particular attention being paid to the low skilled and qualified. This recommendation is now in the hands of a government committee charged with developing an implementation plan. Recommendations included in government sponsored lifelong learning reports and in the white paper on adult education 'Learning for Life' published in 2000 have only been partly implemented.

There are different and contrary positions held by stakeholder groups on what should be done and how it should be done around tackling educational disadvantage in the workplace. Individual stakeholder groups create many of the problems denying

employees access. There are many barriers such as cost, time, priority, benefit, ideology, funding, sector needs and cultural issues placed in the way. The absence of leadership on the issue leads to a stand off with little of benefit being done. A body with sufficient powers to grasp the nettle and engage the main stakeholders to get the job is needed urgently.

The experience of the researcher in managing the participation of educationally disadvantaged employee groups in Waterford Crystal Ltd in education and in reviewing the literature indicate that only government has the overall authority to remove many of the barriers to access. External forces are responsible for much of the competitive context in which individual organisations and employees have to operate. Ninety seven percent of private businesses in Ireland are small (under 50 employees). They do not have sufficient resources to respond to the needs of educationally disadvantaged employees. Even in large organisations the emphasis is mainly on job specific training. A holistic approach to employee development is a luxury few employers can or will support. It is this broad approach to employee education that is most needed if the real needs of the educationally disadvantaged are to be addressed.

In establishing an appropriate response to tackling educational disadvantage it is essential to appreciate the changes taking place nationally and globally. Economists indicate that the global economy will create a competitive context which will challenge all the stakeholder groups to continuously adapt and reinvent themselves. The Irish workforce is engaged directly in exporting and importing products and services or is working in public and private service organisations that service a globally based operating infrastructure.

Chapter 2: Literature Review

In planning a review of the literature the researcher set out to identify and address the issues that impacted directly on educational disadvantage in a knowledge economy. A number of outstanding issues were quickly identified that relate to the core of the research study. These include

- Globalisation
- Competitiveness
- Industrial change
- Application of knowledge
- Access to continuing education
- Employability
- Employee competency as a source of sustainable competitive advantage
- Personal motivation and adult learning

The review covered emerging trends at global, national and local levels on organisational and employee adaptation to industrial change.

Globalisation is a growing phenomenon.

For Irish workers competing in a global business environment, best in class means best in the world for those engaged in exporting worldwide. To achieve the business objectives employees need to produce world- class performances. From its inception in 1783 Waterford Crystal established an international reputation for its products. Having closed down its manufacturing operations in 1861 it re-opened again in 1947 and very quickly reclaimed its pre-eminent global brand position. Waterford always

competed at the high end of the premium gift market promoting outstanding craftsmanship, quality and distinctive design as competitive advantages. See appendix C pp326-337 on the history of the company.

Today, many Irish situated companies lead the world in business performance. In a variety of economic, social, cultural and sporting spheres Irish men and women excel on the global stage. The government strategy to compete at the higher end of the value chain presumes the availability of a highly skilled workforce. The Industrial Development Authority (IDA) has adopted the creativity and adaptability of workforce as the main theme in its marketing campaigns down the years. Ireland is one of the most open and globalised economies.

Globalisation can mean different things to different people. Rugman (2000) contends that it involves the activities of multi-national enterprises engaged in foreign direct investment and in the development of business networks to create value across national borders. It is the global interaction of people in economic, cultural and social and sporting activities that is the most common representation of the term globalisation.

Many others in the western world view globalisation in the context of international trade only. Garrick & Rhodes (2000) explains in some detail how globalisation involves the integration of the economies of nation states through market mechanisms accompanied by increased trans-national flexibility of capital and labour markets and the introduction of new forms of information technology.

They conclude though that globalisation is a much bigger issue, but trade was, is and will remain its main engine. In its broadest sense it includes managing and preserving the environment, the free movement of people and products, the reduction of poverty, the spread of democracy, a commitment to building a peaceful and prosperous world and agreement on the implementation of global ethics and standards.

There are many international agencies and organisations committed benignly to assisting in global cooperation and development. Some of the best known include the International Monetary Fund (IMF), United Nations (UN), United Nations Educational, Scientific and Cultural Organisation (UNESCO), Organisation for Education Cooperation and Development (OECD), World Economic Forum (WEC) and the World Trade Organisation (WTO).

There are many non- governmental organisations involved in relief work, intervening in global disasters to alleviate hardship such as the Red Cross, Goal and Trocaire to name but a few. There are also many sporting organisations such as the Olympic Movement, World Soccer and Rugby associations providing a global context for international competition. The World Cup in Germany, which kicked off on the 9th June 2006, created huge interest and following across the six continents drawing people of the world together to share in a common interest. These shared interests are the strings that bind the people of the world together in a common expression of our humanity.

Globalisation as Bossidy & Charan (2004 p11.) explains 'is an old idea, but we are only beginning to see what radical and pervasive changes it is bringing' They

continue to explain that the integration of business activities across borders, which the Internet has accelerated by an order of magnitude, means that virtually every business is now operating in a global context. They maintain that new competitors can come from anywhere. As stated above cost benchmarks are set wherever in the world that a business can produce something of best value. The key to achieving competitiveness is to achieve global cost parity, meaning that you cannot be out of line with the lowest cost source no matter how fine your product may be. Virtually every business is now a player on the global stage either directly exporting, purchasing materials and expertise globally or sub-contracting services and products to multi-national corporations.

The Secretary General of the OECD, Johnston (2005), explains that the extent of global integration between national markets is much greater than in the past. Moreover it is the pace of change that has put enormous pressure on societies to adapt and create new skills. Today's global economy is integrating more every day. One indicator of this integration is trade, now the major engine of growth in developed and developing countries alike. The volume of world merchandise traded today is about 22 times what it was in 1950. During the same period, the value of the world's output has increased seven times over.

The Irish government through the Industrial Development Authority (IDA) is acutely aware of this developing globalisation trend. The IDA is focused on encouraging the most innovative companies and their research & development facilities to locate in this country over the next decade. In the IDA Report (2006 p2) CEO Sean Dorgan states 'once we firmly placed Ireland on the world map as a knowledge economy, our challenge then was to make sure the investments we secured for Ireland would be

innovation driven, technologically advanced and with the highest calibre of employment creation’.

Irish workers are expected to apply their knowledge and skills in a research and development context, innovating and producing high quality, high value products for export. In an integrated and agile manufacturing supply chain every employee, (link in the chain) has to synchronise with the business philosophy, strategy and operational objectives of the organisation if it is to prosper.

In competing at the front line of industrial and service development it is often first to market with new product or enhanced product/service that provides a real competitive advantage. The rate of economic and social progress in the future will require every worker in complex and sophisticated supply chains to be in a continuous learning mode. They will need the support of all third level education and training institutions. Knowledge and technology has no borders but tacit knowledge and the collective knowledge of organisations are unique to each organisation. They are a real source of sustainable competitive advantage in today’s knowledge economy.

In studying globalisation from a cultural perspective Wolf (2004) cites Peter Berger of Boston University who lists four facets of cultural globalisation.

- (1) Business values
- (2) Intellectual values
- (3) Popular commercial culture
- (4) Spread of religious movements all of which represent an intensified and accelerated form of the increasing challenge of modernization.

He contends that to fully understand the growing integration of global interests each of the facets of cultural globalisation need to be taken into account. A more complete picture of the interrelationships and interdependencies can be drawn. The many developments taking place can be more fully appreciated in taking the more holistic approach.

For the last few centuries the number of cells in the embryonic global brain has been proliferating according to Russell (2000). But today, population growth is slowing and at the same time we are moving into the next phase, the linking of the billions of human minds into a single integrated network. The more complex our global telecommunications capabilities become the more human society is beginning to look like a planetary nervous system. The global brain is beginning to function.

In studying many definitions of globalisation Russell strikingly describes a one world with no boundaries in communicating, travelling, learning, socialising and trading. Russell captures the rapid and near instant linking of humanity through communications technology and the rapid wholesale dissemination of information.

Internet access has drawn many nationalities and cultures together through access to the same information. There have been a number of recent examples which captured the attention of the world's population. These included the tsunami disaster, outbreak of Asian bird flu, Iraq war, Pakistan earthquake, the make poverty history campaign, the World Cup soccer draw in Germany and the World Trade Organisation talks in Hong Kong.

Sweeney (1998) points out that globalisation is the process by which markets and production in different countries are becoming increasingly interdependent due to the dynamic of trade in goods and services and flows of capital and technology. The removal of rules, regulations, quotas and barriers to trade has resulted in the freeing up of the movement of goods, services and, particularly, capital between countries.

Though global communications, technologies, travel, industrial and political developments, the global economy are influencing developments in individual countries. No one country is self-sufficient, witness Ireland as an example that has to import over 70 % of gross national product. The most advanced and powerful countries of the West are dependent on third world countries for minerals, raw materials, labour, tourism, business and investment outlets. The world is becoming more integrated by the decade and the self interest of both the giver and receiver makes both of them better off in properly managed transactions. Accommodating a wide diversity of peoples, cultures, religions, political ideologies and international trade will pose serious challenges for every country and for global institutions responsible for world peace and prosperity in the future.

Barroso (2005 p.40) 'Globalisation will continue at an extraordinary pace. Technology in 2006 will transmit even faster the effects of change from one part of the world to another. The speed of change, its global reach and the competitive challenge that it presents for the EU member states will not diminish'.

Globalisation in an Irish context is both a challenge and an opportunity. The challenge is to remain competitive in an increasingly competitive environment. The opportunity

is to be able to access an expanded international market with an increasing number of affluent consumers. Employees today need to be able to maintain the capacity to deal with future change and where possible, initiate, shape and lead it. Over the past decade the Irish government has taken steps to build a competitive economy. In order to consolidate and improve this competitive advantage, significant investment is required in the continuing education and training of the national workforce.

Ireland has been ranked 1st for three consecutive years as the most globalised country in the world out of 62 countries accounting for 96% of the world's GDP and 85% of the world's population cited by IDA (2004 p.14) cited AT Kearney / Foreign Policy Magazine Globalisation Index, 2004. To enable the economy to retain its current competitive edge, Irish workers will have to secure a competitive foothold in the top tier of independently recognised skilled and competent workforces in the world. Any lesser ranking will weaken the competitive base of the economy. With few mineral resources to call on Ireland has to ensure that its competitive edge comes from the creativity and commitment of its workforce. The island of Ireland with a population of five million people is too small to create sufficient demand to support the vast majority of companies at home. In a competitive and globalised economy the 600,000 educationally disadvantaged employees represent both a potential liability and a wonderful opportunity.

Competitiveness is the final arbiter.

In an open and global economy the competitiveness of industry is a critical issue to ensure survival and growth. Private business cannot generate sufficient profits to cover reinvestment and protect shareholder value if it is unable to establish a competitive base. Global Competitiveness Report (2005 p 44) defines competitiveness as 'a country's share of world markets for its products'. It asserts that true competitiveness is measured by productivity. Productivity allows a nation to support high wages, a strong currency, attractive returns on capital and with them a high standard of living.

'We are standing on the verge, and for some the precipice, of a revolution as profound, as that which gave birth to modern industry, states Hamel & Prahalad (1994, p29). It will be the environmental revolution, the genetic revolution, the materials revolution, the digital revolution and most of all the information revolution'.

Their prediction of an information technological based revolutionary change proved very accurate in subsequent years. The industrial and societal changes of the past 10 years have been greater in impact than all the changes that occurred in the previous fifty years. The new industrial paradigm has created a global business environment that is increasing in size and complexity and which has changed the nature and content of work and job specifications. In studying definitions of competitiveness in the literature Sweeney (1998 p135) provided a most succinct interpretation when he explained that 'a firm is competitive if it can sell its products at the market price and be profitable'. Many factors and inputs contribute to industrial competitiveness. In the local, national and global economy every business has to juggle and manage a range

of inputs and a mass of interdependent variables. The role of the employee in this milieu is most important, as it is employees who create the value.

The new structures and approaches challenged employees to multi-task and up-skill to a level never before imagined or planned. Open access to education for all categories of employees became a major issue. Education provided the basis for future training in mainly academic, knowledge- based concepts. Today, the vast majority of Irish employees are denied an opportunity to return to college due to employer and provider inflexibilities and employee misconceptions of the difficulties involved. Advertisements for skilled job vacancies carry basic third level degrees as entry point requirements.

In the new economy the close availability of skilled labour, materials, production capability and markets determine preference for specific locations. The fundamental issue is how the Irish operation can become the most competitive unit in the corporation or in its industry sector worldwide. Multi-nationals regard the entire world as its operating environment and they tour the world to identify the best locations and the places that can provide them with the best return on their investments.

The Irish Management Institute (IMI) research unit carried out extensive research on the competitiveness of the Irish economy in 2004, O'Connor (2005 pp7-11). A survey of 64 multi-national companies in Ireland, employing 22,000 employees and on average 26 years in the country was undertaken. Annual exports from the participating firms (Irish operations) amounted to €7.7 billion. The chief executive or

most senior manager completed the questionnaire. All the main sectors were represented in the survey including medical devices, software, electronics, technology, pharmaceuticals, chemicals, food, communications, construction, engineering, energy, brewing, soft drinks, distillery and others. Thirty- three competitive variables were identified and rated. The results were as follows (variables marked bold relate directly to employee inputs and their rated importance and performance in achieving competitiveness).

IMI Competitiveness Study (2005).

Competitiveness Issues	Performance	Importance
Corporate taxation	1	3
Political stability	2	17
Interest rates	3	25
*Education system	4	2
*Management talent	5	6
*Labour force skills	6	10
Quality of suppliers	7	24
Quality of life	8	21
*Labour force flexibility	9	4
Availability of suppliers	10	28
*Industrial relations	11	16
Government incentives	12	30
*Labour force availability	13	11
*Family friendly policies and practices	14	29
Support for R&D / innovation	15	15
Regulatory framework	16	26
Employment legislation	17	19
Rate of inflation	18	5
*Pension costs	19	23
EU employment directives	20	32
Exchange rates stability	21	14
Air and sea facilities	22	6
Other environmental issues	23	27
Non –wage labour costs	24	8
Broadband availability	25	18
Property/construction costs	26	33
*Availability of childcare	27	31
Waste management	28	22
Costs other than labour costs	29	9
Insurance costs	29	20
*Wage costs	31	1
Road transport	32	13
Energy costs	33	12

Figure 8. The Irish workforce is a source of sustainable competitive advantage- IMI (2005).

Note * Four employee related competitive variables are in the top ten under performance and five (+ wage costs) under importance.

IBEC (2004) observes that international investors regard skilled workforces as a primary asset in competing in an ever- changing commercial environment. The most important question for them is who can provide the best value for customers. An important component in the competitiveness equation is the provision of training and development, regarded as paramount in creating, adaptable, flexible and skilled workforces.

As the economy continues to move up the value chain, employees must continue to improve their qualifications, skills and knowledge to maintain their relevance and impact. Three new developments have emerged in the past decade that has heightened the competitive struggle for managers and employees.

- (1) These are inter- location competition between plants within the corporation.
- (2) The outsourcing of functions and disciplines from other locations.
- (3) The off-shoring of functions to other countries displacing Irish operations at home.

Competition is now an on-going struggle for competitiveness between plants and locations within the global corporation. The major corporations compare performance of plants across the world and poor performing plants are likely to be rationalised and the business moved to the more profitable locations.

According to McIvor (2005 p6) 'outsourcing is successfully employed to achieve performance improvements across the entire business'--- outsourcing involves the

sourcing of goods and services previously produced internally from external suppliers'. This can involve outsourcing of any of a range of functions such as manufacturing, IT, security, maintenance, canteen services, cleaning, maintenance, human resources, training, customer service, warehousing, distribution and finance.

The outsourcing process subjects the business performance to on-going and in-depth evaluation through 'make or buy' decision-making as it seeks to obtain best value in all areas of its operations. The home-based operation competes with the best external sources for new business. This development places continuous pressure on the home-based workforce to become a competitive supplier to the business.

Offshoring is often confused with outsourcing and is a different form of it. Berry (2006) explains the concept by using the principles of international trade. A country imports services when its domestic companies hire foreigners to do service work otherwise performed by a domestic worker. Conversely, a country exports workers when its citizens perform service work for a company located in a foreign country. The following are two examples of offshoring: an example of the import of services is when an Irish company opens a technical support centre in India and hires locals to do the work. An example of the export of services is when a lawyer in Dublin is hired by a company in New York to handle legal work. In the first example the Irish company offshores technical support centre services to India and in the second example the US company offshores legal services to Dublin. Cost, the availability of cheaper skilled labour) is often the main reason for offshoring. There are also other considerations such as specialist expertise, knowledge of location, the ready availability of scarce raw materials and the closeness to markets.

In recent years indigenous companies and foreign multi-nationals in Ireland have engaged in widespread outsourcing and offshoring to gain that extra competitive edge. The International Financial Services Centre in Dublin hosts many offshore operations from countries worldwide. Waterford – Wedgwood have off-shored a sizeable portion of its ceramics production to China and Indonesia where wage costs are one sixteenth of UK levels.

Inter-plant, outsourcing and off-shoring sharpens considerably the competitive agenda for home based companies and their employees. If this global challenge for competitive manufacturing can be overcome the Irish economy will have become globally competitive. Ireland has moved up the value chain to compete on knowledge and technology. It is the quality of the workforce that will secure a competitive edge in a high value business environment in the future. Predicating the strategy to compete at the higher end is the availability of a highly skilled and qualified workforce.

The next competitive advantage involves engaging the firm and consumer to co-create value is claimed by Prahalad & Ramaswamy (2004). The co-creation becomes the very experience of the value. They argue that the new element of competitive advantage is the co-creation of value between producer and consumer. The value creation process centres on skilled and creative individuals and their co-creation experiences. They are moving on from the competitive advantages achieved through price, quality, customer service and product / service customisations.

This was a standard relationship between craftsman/ artisan and customer in 18th and 19th century Britain. It is still very much a feature of work in Waterford Crystal Ltd where the customer provides outline briefs for the designers and craftsmen. They interpret the briefs and produce the product. There is a constant dialogue between customer and craftsmen designer throughout the process. The relationship is very much a part of the 'experience' for the customer.

Co-creation is a unique experience between individual customers and the designer-producer to create a product or service. Employee competence is the key enabling factor in the equation. Employees directly interface with consumers in satisfying their needs. Customer needs are the 'reason for being' for all business organisations. It is the customer who provides the revenue to pay the wages and create the profits without which private business would not exist. The anonymous relationship between designer/producer, (designer, technician, craftsperson, admin and general operative) and the consumer ends if this co-creation customer service philosophy is implemented by leading product and marketing innovators. In this context the skills and creativity of employees at all levels becomes crucial to the process.

A similar development is taking place in the production and marketing of food products. Consumers are demanding traceability from farm to consumer. The customer wants to know where the initial raw material is sourced, where the product is made, how it is made and who has made it. They want a guarantee on its quality and authenticity prior to purchase. In a growing health conscious consumer market the trend of linking consumer directly to the producer in the food supply chain will become even more important in the years to come.

Quirke (1995 p155) quotes Bill Gates of Microsoft: 'In the future as sales no longer increase at historic rates, the company will have to tailor more closely to customers. Staff, he tells them, will live, eat and breathe with their customers, understand everything about them, sell to them and be their advocates'. In this world of customer service the employee is given additional responsibility. A major change has also occurred in the public service at the interface with the consumer. It is now common to deal on first name terms with individuals in departments leading to better and consistent service.

A successful focused enterprise according to Gerstner Jr. (2002) is one that has developed a deep understanding of its customer's needs, its competitive environment and its economic realities. The change that Gerstner introduced into IBM in the early 1990s involved massive rationalisations, restructuring and changes in strategy and priority.

Investment in education and training in the past played a vital role in the development of the Celtic Tiger economy and the rapid economic growth achieved between 1994 and 2001 according to a recent ICTU report (2005). Economists and policymakers point out that future economic development will rely heavily on knowledge and innovation. Both will depend on the skills of people and so the education system at all levels is important. But, the skill enhancement of those at work is equally if not more, important.

Pfeffer (1995) contends that if competitive success is achieved through people---if the workforce is, indeed an increasingly important source of competitive advantage---then it is important to build a workforce that has the ability to achieve competitive success that cannot be readily duplicated by others.

The capacity of the Irish workforce to work across time zones, currencies, languages, cultures, legislative requirements and logistical complexities attached to outsourcing, off-shoring, marketing and selling globally is a critical competitive advantage. Ireland exports over 80% and imports over 70% of gross domestic product. The Irish workforce has to compete and excel in the global business environment.

Moss Kanter (1995 p22) explains its meaning by stating that 'world class' is a play on words suggesting both the need to meet the highest standards anywhere, in order to compete and the growth of a social class defined by its ability to command resources and operate beyond borders and across wide territories.

In order to be competitive a nation must use its resources of labour, capital and material more effectively than those of other countries - formally stated, productivity is the ratio between the outputs of goods and services and the inputs of the resources that produced them according to Williams (1996) when commenting on manufacturing productivity.

Adapting to industrial change.

Irish agriculture and manufacturing will continue to lose jobs as both sectors are rationalised. The World Trade Organisation in talks in Hong Kong, December 2005 focused on developing and improving 'fair' trade between western economies and third world countries. The basis for a deal was agreed which included a reduction in agriculture subsidies and the opening up of western markets to the developing world. The decision will heighten the competitive environment in western economies. Ireland needs access to new markets for higher end products to compensate for losing un-competitive traditional products and their associated markets.

People resist change according to Maher & Hall (1998) because they fear they will lose something of value as a result of the change. They also fear they will not be able to develop the new skills or behaviours that will be required. Change as profound as closing traditional industries and traditional skills becoming obsolete creates fear and foreboding among business people and dependent employees.

Capturing productivity gains by using the most advanced technology available is a critical element of competitiveness today. Technology is only as effective as the skills of the workforce who use and manipulate it. In building a competitive operation many firms have used a range of reengineering and restructuring concepts to improve business performance.

Re-engineering is described by Hammer (1996) as the radical redesign of business processes for dramatic improvement. It replaces complex processes and simple jobs with simple processes and complex jobs. He argues that people working in high

performance processes do many tasks. They must attend to how they fit together and that they lead to meeting the customer's needs. To do this, they must be able to see and understand the big picture.

Investing in, managing, and exploiting the knowledge of every employee has become critical to the success of information age companies according to Kaplan & Norton (1996). The restructuring, rightsizing and cost reduction programmes carried out throughout the 1990s changed work systems, processes and practices in every area of business. The new organisation is leaner, flatter and fitter. Employees are challenged to improve productivity with the assistance of new technologies, systems and work practices. In many situations they are paid premium rates to work smarter. Many previously menial tasks have been engineered out of the processes. For workers, in particular the low skilled and educationally disadvantaged, education is their only chance to gain new and better jobs, and more rewarding and satisfying work.

A futuristic perspective is put on industrial change in a competitive environment by Bossidy & Charan (2004 p64) who states that 'when ideas are instantly communicated and plans instantly executed through software that lets people collaborate across oceans worldwide business integration can only become tighter and more wide spread'. They assert that changes can only become more rapid, competition more intense and time to market more critical.

The IDA Annual Report (2004 p1) in highlighting the organisation's mission statement point to the competitive direction of Irish industry and services in the future 'We will win for Ireland, its people and its regions the best in international innovation

and investment so as to contribute to the continued transformation of Ireland to a world leading society which is rich in creativity, learning and personal and social well being’.

In the Chairman and Chief Executive Overview (pp3-7) they comment on Ireland’s value proposition and state that ‘large numbers of projects with leading edge business functions which are technologically advanced and increasingly reliant on an educated and professionally skilled workforce have located throughout Ireland’. On superior performance and efficiency they assert that ‘This standard of excellence and its consequential competitiveness has derived primarily from the capability of the internationally renowned high skilled flexible Irish workforce, led by top class managers and engineers’. In looking to the future they claim ‘It is the quality of our people and their skills that will keep Ireland “ahead of the curve.” Ireland has to compete with the best, most advanced countries in the world’. In choosing the high technology, value, wage route to economic and social progress it is imperative that the skills of employees at all levels and across all sectors of employment are improved to cope with a fiercely competitive global business environment.

Tichy (2002 p28) quotes Larry Bossidy of Honeywell who claims that if you ‘show me a great company, I’ll show you one that has radically changed itself and is looking forward to the opportunity to do so again’. Examples include IBM and Guinness.

The application of knowledge.

Using an educational 'Ireland, knowledge is in our nature': the IDA Ireland (2003) point out that according to the OECD, Ireland has outperformed all industrialised economies over the past decade.

They further explain that the key decision (in terms of securing inward investment) was to focus on companies that represented the future, those with high technology, high output, and high skills. In doing so, the economy will be competing at the leading edge of technological development in the future. Future economic strategy is to develop a high wage, high skilled workforce to excel in the knowledge economy.

In looking to the future the IDA points out that Ireland is a serious contender in the new global knowledge market place if it can rapidly expand its capability to develop new knowledge. This development of new knowledge requires serious investment in research and development and the up-skilling of the workforce. Ireland's aim is to lead industrial development in new products and services and its future competitive edge is in intellectual capital. Ireland's vision according to Forfas (2005 p2) states that 'by 2010 Ireland will be internationally renowned for the excellence of its research and be at the forefront in generating and using new knowledge for economic and social progress, within an innovation driven culture'. Higher Education R& D expenditure in Ireland climbed to €491.7m in 2004 (academic year 2003/2004) an increase of 52.6% from the previous HERD total recorded in 2002.

Knowledge workers are those who use their heads more than their hands to produce value. They continue to use their hands but are more likely to be inputting into a computer according to Horibe (1999). Information and communications technology

changed the nature and skill base of almost every job in the 1990s. Communications, information and engineering technologies changed the nature, content and skill base of many jobs in both industry and services. Manufacturing and service companies operating in the global economy embraced new technology in order to survive, compete and grow. The key determinant of success or failure was the capacity of the workforce to manage and exploit the full potential of the new technology.

The transformational change that was changing the way we work and live in today's world was emphasized by Horibe (1999). He said that the flood of information coming at lightning speed really is changing everything, how we buy, how we sell, what we make, when we make it, what we value and where we live. Information is now the driver of wealth creation and those who have it (knowledge workers) are the keys to this new way.

This new work environment rendered some old skills obsolete. Many employees, using their vast experience, tacit knowledge and skills continued to contribute effectively. But, as old uncompetitive manufacturing industry closed and replaced by high skilled employment they were forced to reflect on their readiness to compete for the new jobs elsewhere. The education deficit hindered the learning of new higher order skills required for the new jobs coming on stream.

To become employable many of them needed immediate access to education and training. These new skills were needed to complement their current portfolio of work and life skills. Some of them with a strong will to survive returned immediately to education and adapted to the change. Others found alternative employment to match

their existing levels of competency. Others took the redundancy or redeployment payment and opted for a drop in earnings and status unable to secure an equal or better, replacement job.

There are two main issues to deal with in adapting to technological change. (1) failure to up-skill with new sets of qualifications as jobs are phased out by structural, institutional, technological or social, behavioural change and (2) a lack of mobility of employees as fettering devices such as pension plans, stock options and delayed compensation tie managers to organisations. O'Dowd (1998) in promoting the concept of workplace partnership quotes from a Forfas Report 'Shaping Our Future (1996) ' The ability of firms to compete will increasingly depend on the capability of the workforce to continually adapt to change and be flexible'.

Both of these issues were addressed in Waterford Crystal as managers and workers struggled with institutionalisation, confined skill sets, low education levels, few alternative work opportunities and low morale and self esteem as job security was undermined by the changes. The restructuring of the company, re-training of employees and improving standards of performance ran in parallel with the overall change programme. The intensity of the effort and commitment required to adapt represented a huge challenge for the company, employee and education provider.

Foreign investment in Ireland has been a major source of knowledge transfer in technology, management know-how, international market trends, global investment trends and financial expertise. Many benefits have accrued from the multinationals not least the spill over of business expertise and international best practices that have

helped raise the standard of business performance across the economy. It has helped to build a consensus around the need to educate and train the workforce on a continuous basis.

In the new economy the most sought after competency is the ability to manage change, knowledge and learning capability. The change process has created new skilled jobs, which are driven by knowledge and technology. Continuous learning is essential in order to keep abreast of developments in technology as businesses compete for 'first to market' competitive advantage.

Knowledge applied in the economic domain is the wellspring of innovation, of technical advances and ultimately of enhanced productivity according to Tansey (1998). In moving up the value chain the vast majority of jobs coming on stream over the next decade will be high skilled and knowledge based. (Drucker, 2002 p253) 'The only fast growing group in the workforce in America and in every other developed country are "knowledge workers" people whose jobs require formal and advanced schooling'.

They now account for one third of the American workforce outnumbering factory workers by two to one. In another twenty years they are most likely to make up close to two fifths of the workforce of all rich countries. Such workers have two main needs: formal education that enables them to enter knowledge work in the first place and continuing education throughout their working lives to keep their knowledge up to date. He continues, 'that knowledge differs from all other means of production in

that it cannot be inherited or bequeathed. It has to be acquired anew by every individual and everyone starts out with the same total ignorance’.

The focus on knowledge represents a shift towards people. Focusing on knowledge, by contrast turns attention towards the knower. Increasingly as the abundance of information overwhelms us all, we need not simply more information, but people to assimilate understand and make sense of it, Seely-Brown & Duguid (2000).

Knowledge workers form the fastest growing group in employment in the US and EU according to Harrison and Kessels (2004) and they are likely to put organisations under increasing pressure to ensure a learning environment that caters for their needs. Pressure to make available up-skilling programmes is coming at government, employer and employee as each one faces up to new challenges in the economy

Future prosperity is likely to hinge on the use of scientific and technical knowledge according to Thompson & Warhurst (1998) along with the management of information and the provision of services. The future will depend more on brains than brawn. In particular a special emphasis has to be placed on re-skilling highly experienced workers with low formal education in vulnerable industries and services. They are the most likely to be the first to lose their jobs and do not have the broad qualifications to transition easily to a new higher skilled job. They are permanently stranded in low skilled employment for life unless they can access the education and training to move them up the qualifications ladder.

Designing and implementing change programmes capable of securing an ongoing competitiveness in business is a difficult task. Change is as challenging for executives whose job is to initiate, commission and direct the operations as it is for those who have to implement the plans. The implementers often have to adapt, customise and implement the changes required and gain the results targeted. Bossidy & Charan (2004) inform us that that it is basic human behaviour for many if not most people, to deny reality and embrace unreality, when the reality is more than they can bear. Business is no exception despite the tendency of business people to consider themselves uncommonly realistic'. Managing and adapting to future change in the workplace is the single most challenging task for business and government leaders. If the prosperity and gains of the past fifteen years are to be consolidated and increased some very immediate and imaginative decisions have to be made on how best to up-skill the national workforce in particular those with low qualifications and low skilled jobs.

Irish business, operating, in the most open economy in the world with over 80% of gross domestic product being exported and over 70% of GDP imported is competing directly with the best in the world. Irish business has to become world class. Its benchmarking standards have to be set against the best performers in the world. This competitive imperative drives the need for Irish workers to become skilled and knowledgeable and lead developments in new products, technologies, processes, systems and work practices.

Clinch, Convery & Walsh (2002) cite Ian Mitroff in "Managing Crisis Before They Happen" insists that companies need to develop crisis management capabilities rather

than crisis management plans. Plans deal with known or foreseen dangers. Crisis management is the capability to deal with the completely unexpected, to prepare for the unthinkable before its occurrence.

With the growing complexity and speed of business transactions employees need continuous education and training. They need it to be able to manage the information and develop the knowledge creating and adding value, solving problems, making decisions, adapting to change, developing products, strategies and plans. They need higher qualifications to work new developing processes, systems. They need to be able to provide greater flexibility and inter-changeability that will take the business to a higher level of competitiveness.

Continuing Education.

Education in its deepest sense and at what ever age it takes place according to Wenger (1998) concerns the opening of identities- exploring new ways of being that lie beyond our current state.

Whereas training aims to create an inbound trajectory targeted at competence in a specific practice, education must strive to open new dimensions for the negotiation of the self. It takes students on an outbound trajectory towards a broad field of possible identities. Education is not merely formative- it is transformative.

Those people who entered the workforce in the 1960s, 1970s, 1980s and 1990s without a Leaving Certificate need to redeem this educational deficit to secure work for life in the new economy. The future will offer more opportunities for those with

educational qualifications and with the ability to learn continually in the information driven workplace.

In all jobs and grades including general operative, clerical, craft, trade, traineeship, technicians and technologists, managerial, professional and entrepreneurs, a good basic education is an essential requirement as the knowledge economy develops.

The global business environment, its growing complexity, the increasing accountabilities around statutory regulations at EU directive level increases the need to improve the competence of the workforce. Global competitiveness, which is driving the need for 'world class' standards in all organisations, requires employees in all grades to acquire a good basic education. Learning for Life (2000) the White Paper on Adult Education states that 'a highly skilled workforce, well educated and trained, is a pre-requisite for the maintenance of competitiveness and ensuring the capacity for adaptability and change'.

There are employees who have made better progress than others without the benefit of a good secondary education. Many of them through special circumstance and unique talents only serve to prove the contention that a good basic education is required for those working in industrial and service organisations today.

The value of an educated workforce where foreign direct investment is attracted by an adaptable and educated labour force raises its productivity, and then acts as a magnet for future foreign direct investment is highlighted by Clinch, Convery & Walsh, (2002).

Delors (1996) notes that education must, as it were, simultaneously provide maps of a complex world in constant turmoil and the compass that will enable people to find their own way through the complexity. Education will help them to understand the bigger picture and the role and relevance of the employee contribution. It will help them develop a map and path suited to their own needs and goals.

Education will equip the worker for training in new job specifications while positioning them to compete for new skilled jobs coming on stream. As the report indicates current education provisions will have to be modified and organised around four fundamental types of learning. This comprehensive learning experience will form four pillars of knowledge:

1. Learning to know, that is acquiring the instruments of understanding.
2. Learning to do, so as to be able to act creatively on one's environment.
3. Learning to live together, so as to participate and cooperate with other people in all human activities.
4. Learning to be, an essential progression that precedes the previous three.

If the objective is to provide access to education to enable them to become a Moss Kanter (1995) 'cosmopolitan worker', Handy (1989) 'portfolio worker' and Thompson & Warhurst (1998) 'contingent worker' then it is essential to provide customised programmes that engage previous experience in building the skills of the future. These four categories represent multi-skilled and adaptable employees. They are capable of working comfortably on a variety of tasks in many work settings.

This new age worker has the capacity to manage a range of multi-functional tasks. They have purposefully and diligently built up a portfolio of qualifications and work experiences that are portable and allow them to move within and outside the firm on different projects. These multi skilled and qualified workers are independent of the firm and employable within the economy. The temporary nature of a growing number of jobs and businesses drive this need to develop a mobile skill set at all levels in the organisation. Addressing educational disadvantage is the first step in developing the multi-skilled employee.

Virtually every story of world-class performance is a story of participation at work--- participation is the stitching that holds the organisation of the future together according to McLagan & Nel (1995 p271).

They conclude that when both the environment and the organisation are complex, authoritarian and centralized governance methods are too brittle and unresponsive to ensure the organisation's long- term survival. 'In white water we are better off with a flexible raft and twelve pairs of alert eyes than with a wooden boat in which one captain "up top" directs a galley of fettered rowers'. Complex work systems require a high degree of flexibility and the alert participation of everyone concerned.

In the new knowledge economy there are two very distinct groups of employees whose future prospects are poles apart. These are:

- (1) Those who are qualified, mobile and richly rewarded in every way, remuneration, career prospects, security of employment and mobility.

- (2) Those with low formal education who are struggling in the face of technological change, are poorly rewarded, are dependent and vulnerable to all forms of change.

It is predicted by FAS, ESRI and others that higher skilled knowledge based service jobs will replace traditional manufacturing jobs over the next ten years. It is imperative that employees facing skill obsolescence are accommodated and prepared to make the transition to knowledge work.

Adult learning – pedagogy is a specialist field of expertise requiring a dedicated and professional approach to deal with the issues that affect the learning. It is essential that tutors and the resources available to them are prepared and developed to ensure the employee development experience meets the expectation of employer and employee. Longworth (1999 p100) goes further in describing the learner as ‘the customer whose needs are paramount. The learning provider becomes more accountable and in order to facilitate better learning, it should take into account the learning styles and preferences of each individual and tailor the course to these.

In the pressurized world of the educationally disadvantaged employee the need to understand the needs, vulnerabilities and fears is essential to a meeting of minds on the best approach to take. The adult employee has very definite needs and wants to be very focused on addressing them. A wide range of intelligences are involved across the range of employments and associated skills and the adult tutor needs to be aware and prepared to facilitate a learning experience rather than teach from standard text. The essential issue is that the tutor meets the employee where he/she is and moves

them on to broaden their educational base and achieve an accredited programme that included the development of portable skills.

Winch (1995) explains that training is not an alternative to education because the two concepts belong to different categories; education concerns the long-term preparation of an individual for life, training is usually concerned with the shorter-term acquisition of abilities, attitudes and dispositions. In the current competitive commercial climate the need of the employee is to gain a sufficient level of education to enable him/her to train on higher knowledge, technology based concepts that are included in the specification of the more highly skilled jobs in the knowledge economy. There is an additional reason to leave behind the straight jacket of low qualifications (Handy 2001). In a changing world we cannot rely on what we used to know to see us through the future. Employees who have given up learning are equipped to live in a world that no longer exists. The way of the future is in continuous life long learning.

In complex enterprises of the new millennium, learning has moved from the periphery- from something that prepared people for employment – to the lifeblood, which sustains them, Boud & Garrick (1999, p1). This lifeblood which sustains society imbues in us an increasing desire for knowledge, skills and understanding in our new 'knowledge economy' and permeates our lives as we struggle with new concepts, new technology and new direction.

In the adult employee world of work the ability to solve problems, ask questions, research for information and generally participate in activities need to be nurtured and

utilised in the learning provision. Gijselaers (1996) on problems serving as a stimulus for learning states that is the responsibility of the tutor to facilitate the learning process by asking questions and monitoring the problem solving process and to provide guidance where necessary. Kierkegaard (1959) explains that in order to help another effectively one must understand what he or she understands. If this is not known the greater understanding of the tutor will be of little use to him/her. Instruction begins when the instructor puts him/herself in the learners place and understands what he/she understands and the way he/she understands it. The secret in redeeming the education deficits of educationally disadvantaged employees is to develop a contract with them which takes account of their fears and anxieties. It is critical to acknowledge and accredit what they already have achieved and then provide them with the follow on programmes they require to progress in the workplace.

In order to successfully motivate a learner the right environment has to be created. Mager (1984) discusses different factors that impinge on the learning context and fear, and anxiety are but two of them He believes that if the stimuli are not strong or interesting enough to challenge the concentration levels of the learner then 'people tend to avoid the things they are hit with'. There is a tension in the dependency relationship between tutor and employee in an adult education contract. The employee may have had to step out from a secure environment and be exposed to failures that have career threatening consequences. This fear factor is very prevalent in a restructuring context as failure to acquire the relevant qualifications will mean a drop in credibility which is fundamental to filling a leadership role of any kind in

private industry. The expectation of the employee student must be met by the tutor who is the interface with the system responsible for providing it.

‘Only if we expand and reformulate our view of what counts as human intellect will we be able to devise more appropriate ways of assessing it and more effective way of educating’ Gardner (1983 p4). The scope and breadth of the abilities and needs of employees require a comprehensive study and preparation to ensure that the maximum number are liberated from their bondage of the lack of sufficient education to enable them to move with the change and where possible invent it and shape it. As Curzon (2004) explains that everything a teacher does in the classroom, as well as the style in which it is done, will provoke the student to respond in some way or other and each response tends to set his or her attitude in some way or other. Freire (1996) believes that everyone brings something to a learning situation. Recognition of this raises the esteem of students. This he says affects their ability to share information and as a result of this sharing, learn.

In the new knowledge economy it is the ability to learn that is the most important competency. In dealing with continuous change it is imperative that employees and in particular those that are currently educationally disadvantaged are provided with the means to engage in lifelong learning which will be dominated in the workplace by information, technology and knowledge in the future. Covey & Merrill (1994 p190) emphasize the need for this continuous learning ‘Real learning gets to the heart of what it means to be human. Through learning we re-create ourselves. Through learning we become able to something we were never able to do. Through learning we

extend our capacity to create, to be part of the generative process of life. There is within each one of us a deep hunger for this type of learning’.

Employability.

In commenting on employment in the EU at a macro level Foundation Focus (2005) makes the point that ‘ Preserving the employability of workers and facilitating their transition to another job of the same quality has an economic value in maintaining the quality of the workforce and guaranteeing future growth’.

Many people who did not complete their Leaving Certificate who are technically gifted in a range of disciplines have become successful entrepreneurs. Many contractors in industry, services, tourism, agriculture, construction and transport are self-starters and self-learners. Their exceptional circumstances are unlikely to be replicated by employees in organisations.

Further job losses can be expected in the medium term as the economy continues its structural adjustment from low skills to high skills and from agriculture, industry base to a services economy according to the Irish Labour Market Review (2005). This transformation in the nature and content of employment in graduating to a high skills economy demands a comprehensive response from the government.

Two important and recent reports requested by the government argued strongly for the immediate up-skilling of the national workforce. The Role of Migration report (2005) insists as an underpinning principle that the primary policy objective of government should be the up-skilling of the resident population at all levels. The Enterprise

Strategy Group Report 'Ahead of the Curve' (2004) recommends a 'One Step Up' initiative facilitated by the National Framework of Qualifications. It argues that in engaging the workforce as a whole, particular attention should be paid to people with low levels of qualification and in low-level occupations that are most vulnerable in change situations and are least likely to receive sufficient access to learning opportunities.

It is predicted that between 30,000 and 50,000 migrants will be needed each year for the coming ten years if the labour force needs of the economy is to be met. The ESRI Report (2005-2012) forecasts an additional 400,000 people will be required in the workforce between 2005- 2010. At least 80% of these new jobs will be highly skilled. The Role of Migration Report (2005) estimate that between 20,000 and 30,000 skilled migrants will be required each year up to 2011. ICTU (2005) predict between 40,000 and 60,000 net migrants for the next 5 years. FAS sponsored Irish Labour Market Review (2005) cites the CSO as predicting 50,000 migrants per annum to fill skill shortages in particular areas. It is clear that the growth and diversification of the workforce will continue causing the demand for a base education level to aid integration and trainability in the knowledge economy being created.

In this overall context, special assistance is needed for educationally disadvantaged workers who if given the opportunity would fill many of the skilled jobs coming on stream. They are available and are currently helping to maintain the economic miracle. They need access to appropriate educational opportunities to improve their skills and employment prospects. They are best placed to provide an immediate return on investment in their education by moving up into higher skilled employment and

engaging in higher value activities. They are more likely to retain employment in difficult economic circumstances having the skills to adapt to a changed environment. They are a precious national economic and social asset to be developed and to enable them to deliver improved economic performance across the economy and society.

The issue of helping migrants to move into skilled jobs in line with their qualifications is highlighted in the FAS National Skills Bulletin (2005). Many highly qualified workers are in lower skilled jobs and are held back by their poor English language skills. Special English language courses would activate these higher qualifications raising their productivity levels, which is the key to competitiveness in the high value employment. The National Qualifications Authority offers a wide range of accredited programmes delivered by a broad cohort of second and third level institutions countrywide. The resources are there, they only need to be mobilised.

The Irish Labour Market Review (2005) refer to Tansey (2005) who states that productivity growth can be accelerated by increasing investment in human capital and enhancing its efficient use: education and training raise the skill, knowledge, adaptability and abilities of the workforce.

Over 1,000 employees from a total workforce of 1,600 employees in Waterford Crystal in 1990 had not achieved their Leaving Certificate or its equivalent on joining the company, Cooke, (2005) in 'Finding the Other Way'. Many joined at a very young age as apprentices in the 1960s, 1970s and 1980s. Others joined as general and semi-skilled operatives having departed the formal education system at a very young age. Many did so due to economic, family and personal circumstances. Throughout

the 1990s to date approximately 900 employees returned to education and achieved national certificates, diplomas and degrees. The resources were provided to address their education deficits as the business changed to a technology, knowledge based operation.

According to the Enterprise Strategy Group, (July 2004) eighty per cent of those currently in work will still be in work in 2015 while eighty per cent of current technology will have become obsolete by that time. The Role of Migration Report (2005) states that fifty four per cent of migrants have primary degrees or more while twenty seven per cent of the native workforce have primary degrees. As future job growth will be primarily in the high skills category, it is imperative that the 73 per cent of employees without degrees are facilitated in achieving national certificates, diplomas and degrees.

There is a compelling case to be made to the social partnership forum to negotiate a major employee education initiative in 2006. The Competitiveness Challenge (2005) state that currently only 7.2 per cent of Irish employees are engaged in part -time education. The Lisbon target for 2010 is 12.3 per cent and currently Denmark and Sweden have an over 25 per cent participation rate.

Research from the National College of Ireland (2004) confirms that 250,000 people wish to return to part- time education if provided with the opportunity to do so. In the research, several barriers such as, the cost of fees, time off for classes and the ready availability of relevant courses were most prominent. To tackle these barriers it is necessary to establish a co-ordinating body that can access all the relevant resources

under the control of government departments, industry and services and education & training institutions and providers. The report also points out that a lack of confidence is a major blockage in denying people a return to education.

In Waterford Crystal many employees admitted that until the company faced a crisis they had not considered gaining a new academic or vocational qualification. Having completed it they were disappointed at not having returned to college sooner. They also admitted they had remained unfilled throughout their working life until they had completed their first accredited course. Their educational deficit had consistently frustrated the advancement of their career. Once they had obtained the qualification they all felt more at ease with themselves and their confidence and self-esteem soared.

Enterprise Strategy Group, (2004) proposes that an essential element of the 'One Step Up' initiative is that a single body be charged with driving the process, setting targets and milestones for monitoring progress. As already stated the report from the implementation committee is awaited before action can be taken. There are sufficient but under utilised resources available. The social partnership forum can make it happen. As it stands the critical resources under the management of a range of third level institutions and training bodies are scattered, duplicated, dormant and competing with each other. For the most part the education of employees is treated as a very secondary priority.

Business, labour and government must work together to plug the skills gap and keep America competitive according to Rose & Nicholl (1997) who cites Joan C Szabo Secretary of Labour in US.

There are thousands of employees in traditional indigenous manufacturing and service companies facing job and skill obsolescence, company closures, restructuring and re-engineering of processes, systems and jobs. Many businesses have become global, sophisticated and complex operations leading to more demanding job specifications. Kaplan & Norton (1996) maintain that the machines are designed to run automatically. The people's job is to think, to problem solve, to ensure quality, not to watch the parts go by.

Small and medium industries employ over 50% of employees in the private sector and these industries are even more subject to change as the multinationals and their international export base set very demanding standards for them. Employees without a basic second level education are seriously at risk as the skill base required moves up the value chain.

This issue of addressing the educational needs of educationally disadvantaged employees in the current workforce is of particular importance in achieving high performance in industry and in developing a cohesive society. Surprisingly, very little research has been carried out on the increasing vulnerability of this category of worker as the national economy and the processes and job specifications move up the value chain highlighting the need for higher skilled workers.

National Competitiveness Council Report (2005) holds that 'In the face of global competition and relatively high domestic costs, Ireland needs a workforce with higher skills levels. Ireland cannot rely on sourcing these individuals exclusively from the

output from second and third level education or through immigration; they can also be sourced from within the existing workforce through up-skilling'. This employee cohort is potentially the most productive in the entire workforce. They have acquired a wide range of skills and work experiences. They have contributed significantly to the success of the economy in the face of fierce global competition. They are highly motivated, valuing employment and its benefits. They want to retain their employment status and standard of living.

'We have many at work, who if they were up-skilled, would meet a great part of the demands of individual companies and the economy and importantly improve their income and their welfare' ICTU Report (2005). Many of them have them have unrealised potential having previously survived in work without the support of a good formal education. They joined the workforce in the 1960s and 1970s when many people through economic and social circumstance found it difficult to complete secondary education.

ICTU (2005) points out the reality of this educationally disadvantaged generation of employees. An average Irish 54 year- old has another ten years in today's labour market. S/he would have sat the Senior Certificate in 1967 when only 22% of boys and 21% of girls sat the Leaving Certificate. Today's 35 year-olds sat the Leaving Certificate in 1986 when 64 % of boys and 76% of girls sat the exam'.

Many Irish workers if re-educated would be capable of filling a significant proportion of these jobs and secure employment for life. The position of these workers is further advanced in the CSO, QNHS (4th Q, February 2006,p1) which points out that 'on

average there was an 87,000 or (4.7%) increase in employment in 2005. The majority of these new jobs were skilled. Forty thousand migrant workers were recruited to help fill this skill deficit in the economy. Role of Migration Report (2005p5) states that 'economic migration is not a substitute for the up-skilling and training of the resident population'. It states 'The primary policy objective of government should be the up-skilling of the resident population at all levels' on page 10. It is essential for future stability and equity that low skilled employees in particular in vulnerable industries, should be up-skilled as a priority to compete for the new skilled jobs coming on stream.

It is both an economic and social imperative that action is taken on this immediately. The Enterprise Strategy Group Report (2004, p 79) recommended that 'a national 'one step up' initiative, be facilitated by the National Framework of Qualifications. While this initiative seeks to engage with the workforce as a whole it should pay particular attention to the people with low levels of qualifications and in low – level occupations, who are least likely to receive sufficient access to learning opportunities'.

Highly committed and experienced native workers if re-educated would make suitable candidates for the new skilled jobs. The old job for life expectation has been undermined completely in the private sector by the changing and developing business environment.

A major deterrent for employers in accommodating the training of employees in new skills while at work is the difficulty in retaining them having made the investment. Qualified employees always have the option of moving to better employment.

Stewart & McGoldrick (1996) cite Streek (1989) that employers in the advanced industrial countries of the West will encounter difficulties in retaining skilled labour due to the existence of the 'free labour contract'. The right of workers to move to different employers without any obligation to stay with any one employer means that firms who invest in training cannot guarantee a return for their investment. Recruiting workers trained elsewhere reduces overall labour costs despite the existence of higher wage incentives to assist this recruitment. Thus firms can choose not to train workers and can rely on the skills developed within other companies. If all other companies do the same a chronic skill shortage will occur.

Employee competency- a source of sustainable competitive advantage.

Under competitive conditions where it is easy to replicate product and technology the one resource that is most strategic is the one that is most difficult to copy due to the socially complex nature of its formation – human resources (Flood et al., 1996). Human resources are valuable, rare, hard to imitate and non substitutable and meets all the criteria of a resource that provides a source of sustainable competitive advantage.

The more you can add value to your people during the project according to Maher & Hall (1998) the more your people can add to the project. It becomes a virtuous circle

of added value. In industry today education and training is an investment that will produce immediate results as the skills of employees are put to use in a productive way. Employees are appreciating assets and every improvement in skills will show in improved performance. All other assets other than land and brand value are depreciating assets and have to be funded for depreciation on an annual basis.

When asked what they want from people today, leaders almost universally respond, we want people who are problem solvers, who take initiative, and who act like they own the business according to Blanchard, Carlos and Randolph (1999).

Organisations that have the edge and keep the edge are those that recognise the need for more intelligent workers, find them and keep them, Martin (2001). The forces that drive productivity growth are widely recognised and according to Clinch, Convery & Walsh (2002) the ideal combination is a well – educated and adaptable labour force working with new technologies and up to date physical capital. In the early 1990s the chief executive of Waterford Crystal announced that education and training was the key to future competitiveness and this mantra was repeated time and time again. In hindsight, the executive were pushing an open door as a combination of inspired leadership, crisis in the business, dissatisfaction with education qualifications, pride in company and brand unleashed a pent up energy and commitment to the acquisition of the knowledge and skill base.

Personal motivation drives personal change.

Personal motivation as expressed by Maslow (1970) in his hierarchy of needs form the basis for driving the economic and social agenda. Employees are motivated by the

need to make a living and feed their families first and foremost. They depend to a large degree on the self-interest of the employer, government and themselves to provide access to the necessary education to secure a 'work for life' portfolio of skills. They are motivated to retain employment, contribute to the competitiveness of the firm and pay their taxes to the state. A compelling case can be made to government, employers, educationalists, training institutions and trade unions that it is in their interest and that of the economy and society to invest in educating and training the workforce and maintaining maximum employment.

Maslow emphasized the primary needs as physiological involving the accessibility and affordability of food, water, heat and clothing. Until these needs are satisfied all other needs are irrelevant. The up-skilling of employees is a basic requirement for the employee, employer, government and publicly funded education and training institutions. It is the employees who make business competitive, deliver the productivity to provide the revenue to fund the education system, maintain all public sector bodies and much more. They are the wealth creators the drivers of economic success and social progress.

A leading psychotherapist in the US, Carl Rogers (1961) believed that people were inherently motivated to make the best of their lives. He argued that there are strongly positive directional tendencies in all living creatures. He believed that the dominant tendency in all living beings was to try to be the best that they could be. His thesis argued, that if given the direction and space to develop, people would invariably choose to improve and realise their potential. He said that it was his experience that all persons have a basically positive direction and want to move forward. He further

argued that the most important question for the creative individual is 'Am I living in a way which is deeply satisfying to me, and which truly expresses me?'

The development of complementary technologies and the increased importance of the technologist directed many employees in the company towards a third level qualification. Once committed they fully engaged with great determination. Regular communiqués from executive management on progress within the company by those who had gained qualifications confirmed the importance of education in the new work organisation.

Rogers (1961) explains that it has been his experience that when a regular university class perceives the course as an experience they can use to resolve problems, which are of concern to them the sense of release and the thrust of, forward movement is astonishing.

Similarly in the work place there are many incentives in place to motivate employees to improve their skills and qualifications. As the job specification content increases in knowledge as processes and systems are upgraded the need to up-skill becomes more important. The rewards included higher remuneration, increased responsibility, greater job satisfaction and new opportunities for advancement. In the new economy there are many reasons for employees to return to college and develop their work-based qualifications. Employees are required to have the capacity to analyse problems, become proactive, anticipate trends and take responsibility for work practices.

The new education qualifications facilitate adaptation to change, improved company performance, which in turn provides new opportunities for progression within the job. As a result, employees enjoyed improved profit share and new openings for continuous learning and development, which led to further improvement in company performance, job/ career progression routes and benefits. The end result was a transformation to a highly competitive business in which employee capability and commitment became a key source of sustainable competitive advantage.

Oakley & Krug (1991) endorses Boud & Garrick who stated that like the enlightened leader, renewal is not something to do. It is a mindset or culture, a place effective organisations and people come from. Becoming a change friendly person in a change friendly organisational environment is essential for creating the future instead of waiting for it to arrive.

Abbott & Ryan (2001) state that the majority of professional development is 'on the job' training and 'want ads' often stipulate that applicants have a certain number of years in the position (rather than a degree in that field). Many would agree that experience is the best teacher. In pursuing professional development in a knowledge economy it infers that the learner has already acquired a third level education.

Throughout the early 1990s both Waterford Crystal and IBM two leading indigenous manufacturing companies in Ireland and the US changed from manufacturing- driven to marketing- led companies. Both companies paralleled wholesale restructuring worldwide as manufacturing and services came to terms with the technological revolution. Gerstner Jr. (2002) explains how on taking over as chief executive of IBM

in March 1993 he informed the media that the market place is the driving force behind everything we do. He announced at a meeting with a customer group, that 'the customers were now running IBM'. His determination to change IBM from a production- driven organisation became a watershed decision for business worldwide. In the new business environment the customer became king and employee competency became a key source of sustainable advantage.

To sustain the economic and social progress of the past decade in industry and services Ireland has to become and remain globally competitive. The development of employee skill and flexibility and the benefits to be obtained represents the best form of motivation for employer and employee. In this win-win situation employees, employers, economy and society benefit and a sustainable high performing model can be developed. The Enterprise Strategy Group's 'Ahead of the Curve' Report (July 2004) makes the critical point in the thesis 'that as most education and training programmes for medium and high level skills require a Leaving Certificate as a prerequisite, those who have not attained that level of education are excluded'. Zylstra (2006) states that lean distribution seeks to directly connect with customers and suppliers in ways that are mutually beneficial. Like mountaineers each link in the chain must be ever mindful of the entire team, but especially the person directly upstream and downstream. The long supply chain is here to stay as global sourcing has taken a firm hold. (see Figure 3 p14).

The positive perspective is that the outcomes of the five phases of the research indicate strong support for Rogers's (1961) interpretation of personal motivation. The experience in Waterford Crystal was that when employees, were given the

opportunity in a supportive environment they returned to education in large numbers to acquire further qualifications. This positive response to educational opportunity covered all categories of employees and range of intelligences. Everyone was interested in improving their employment prospects by moving beyond mandatory job related training programmes into more holistic development experiences through which business literacy, adaptability and flexibility could be nurtured.

Chapter 3: Research Methodology.

Selecting an appropriate research methodology.

The focus of the Ph.D. study is on employees in industry with low educational attainment and the changed nature and content of work that deny them the opportunity to return to college. Close on one third of the national workforce are without the necessary education to enable them to adapt to higher skilled employment as the economy moves up the value chain. In planning an empirical enquiry into educational disadvantage among employees and its impact on competitiveness the researcher choose case study as the most appropriate research methodology. The context is situated in the naturalistic paradigm with qualitative research methods best suited to identify and analyse many of the complex human issues involved. The researcher as a member of the Expert Group on Future Skills Needs was in a position to access much top line quantitative information from the main OECD, EU, CSO, government department and agency data bases on education and employment to harden up the contextual base.

To establish the key issues, attitudes and barriers relevant to employee development and competitiveness it was necessary to get behind the official line articulated and practised by stakeholders in order to fully comprehend the difficulties facing employees in eliminating their educational disadvantage. The main barriers are creations of the main stakeholders including employers, providers and government.

The fears, feelings and experiences of employees around education disadvantage are maintained by the system with little support there to help reduce and eliminate them.

It was important to examine the policies and perspectives of the main stakeholders. Top line quantitative statistics provide a general picture only. They fail to shed any light on 'why' so many employees at a time of great need and available educational resources are denied access to educational opportunity. Bassey (1999 p, 23) citing Adelman et al 'Case studies recognise the complexity and 'embeddedness' of social truths. By carefully attending to social situations case studies can represent something of the discrepancies, conflicts between the viewpoints held by the participants. The best case studies are capable of offering some support or alternative interpretations'.

As it stands today the educationally disadvantaged are stranded in career terms and although they possess wonderful talents their potential is for the most part lying dormant for the want of access to an appropriate education. 'Stevens, Schade, Chalk and Slevin (1993 p41) states 'the task of phenomenologists is to uncover the various conscious and unconscious ways in which humans express themselves and how they 'live' their experiences'. To make progress in understanding the issues surrounding the redemption of educationally disadvantaged employees in a competitive business context the exploratory case study approach was chosen. Stevens et al. (1993) emphasizes that qualitative research as distinct from quantitative is not to measure but to understand. The complexities of the responsibilities, relationships and ever-changing context emphasize the need for understanding of the issues prior to making any recommendations, which might help resolve them.

Schon (2005, p42) refers to the difficulty of making sense of the social complexities which changing work environments present. He distinguishes between the positivist and naturalistic research theories. 'In varied topography of professional practice there

is a high hard ground where practitioners can make effective use of research – based theory and technique and there is a swampy lowlands where situations are confusing ‘messes’ incapable of technical solutions’. He points out that the difficulty is that the problems of the high ground, however great their technical interest, are often relatively unimportant to clients or to the larger society, while in the swamp are the problems of greatest human concern.

In his book ‘Thriving on Chaos’ Tom Peters (1989 pp9-12) highlights the emergence of an age of uncertainty in which yesterday’s solutions often can become tomorrow’s problems as the change process accelerates and many of the master solutions were found to have been entirely inadequate. He says that predictability is a thing of the past. Very few can predict changes in currency values, prices, competitors, technologies, consumer tastes and the outcomes of rationalisations, restructurings, mergers and takeovers so complex and inconsistent is the context. He argues that the solution to a problem within a specific context may not have the capacity to last once the context has changed, sometimes radically. Continuous adaptation, flexibility and learning are essential capacities to ensure survival in a changing world. Bassey (1999, p12) cites Schramm (1971) The essence of case study, the central tendency among all types of case study, is that it tries to illuminate a decision or set of decisions, why they were taken, how they were implemented, and with what result.

Case study research methodology provided sufficient flexibility and scope to explore the complexities of the change and challenges facing educationally disadvantaged employees. Yin (1993 p13) ‘A case study is an empirical enquiry that investigates a contemporary phenomenon within its real life context especially when the boundaries

between the phenomenon and context are not clearly evident'. In this study the integrated nature of business systems and the complexity of the relationships in the supply chain created difficulties in separating out the problem and resolving it. The objective of the study was to issue a set of recommendations to help the educationally disadvantaged access education. To achieve this they had to deal with previous baggage accumulated over the years since leaving formal education. Many of their stories were painful in the extreme. The case study approach best facilitated their telling. (see Appendix B pp 2-325). Bassey (1999, p97) states ' A major strength of case study data collection is the opportunity to use many different sources of evidence'.

Anderson (2004) states that nearly all human resource enquiries that are organisationally – based make use of qualitative data of some sort. A mix of mainly qualitative data with some quantitative data added was gathered throughout this project using a range of research techniques. These included semi- structured interviews, surveys, access to company records and reports, training programme and performance appraisal evaluations were accessed and analysed to inform the process. The knowledge gained by the researcher as training & communications manager was used to frame interview and survey questions. The researcher as training & communications manager was engaged as a full participant in restructuring the organisation and in building employee capability to support the competitiveness and renewal process.

The continually changing business environment of the 1990s to date determined the extent and depth of the changes in the organisation, at executive, function and

department levels. Many previously core and treasured skills became obsolete leaving the highly skilled craftsmen with low formal education denuded of the appropriate skills to survive and progress in the emerging workplace. The new knowledge based competencies require a minimum Leaving Certificate standard of education. This new requirement place inordinate demands on employees in competitive industries without it. Many workers operating shift rota with heavy domestic responsibilities are being challenged to return to education and gain a new basic second level education or its equivalent. The new qualifications need to be added on to those they have painstakingly built up over the years. The new qualifications are needed by business if it is to achieve a competitive edge in a highly competitive global business environment.

This competitiveness journey impacted on all categories of employees in the company but more deeply on those employees whose craft skills had become obsolete. To identify the cause and effect relating to barriers and supports the researcher interviewed and surveyed a good cross-section of employees, their managers and colleagues in the research process. Executive management in planning the future development of the company were very aware of the gap between the current skill base and the new skill base required. Many employees rose to the challenge responding with great determination and commitment and achieving outstanding results on their return to education.

A naturalistic enquiry using qualitative data

The choice of case study as the research methodology was influenced by Lincoln & Guba (1985) who stated that to carry out research from a naturalistic perspective the

enquirer must work in the natural setting. They also noted that the issue of qualitative research is whether the findings of an enquiry are worth paying attention to. The researcher set out to explore, understand and make recommendations on how best to redeem the educational deficit of educationally disadvantaged employees in a period of intense change. The researcher as participant observer held a first hand experience of the impact of transformational change on educationally disadvantaged workers and its debilitating effects on industrial performance.

Intellectual capital involving new knowledge, technical, and research, business and leadership skills was essential to achieving sustainable competitive advantage for many industries and services. The management of knowledge was a key resource in knowledge driven companies. Malone, (2005, pp138-139) states that knowledge management systems capture essential knowledge. They reduce the loss of intellectual capital as people leave. They reduce the cost of developing new products, processes, and services. They (knowledge management systems) increase productivity as relevant knowledge is made available on a 'just in time' basis. Managers are better informed in their decision- making. They prevent repetitive mistakes and accommodate shared learning. Knowledge is centralised and available to all who need it.

Given the ever- changing nature of the context and setting, a qualitative, phenomenological case study approach was best suited to drill down into the complexities of the key issues underpinning transformational change and employee responsiveness. The case study approach captured the many complex interactive elements that made most impact and produced results. Robson, (1993 p5) ' For many

of the purposes and situations in which enquiry in the real world takes place, a different strategy which concentrates on 'studying' cases is worth serious consideration'.

The researcher was in the unique position of acting as a leading change agent and full participant/observer throughout the entire transformational period under review. As an in-dweller he lived through the change experience and engaged on a personal level in developing new skills along with his peers to cover new accountabilities and responsibilities in the job.

The phenomenological ethnographic approach elicited the experiences of a wide group of employees and how they individually and collectively coped in redeeming their educational deficits. The research study interpreted their unique experiences and how they found their way to save their careers by taking an entirely different direction using new skills and qualifications. A number of research techniques were used such as participant observer, interviews, surveys, documentation analysis and development programme evaluations.

The research extended to executive management and general operatives as every category of employee transitioned to a different skill base. The lived experience of both the researcher and employee participants produced a valid set of findings. The recommendations and their rationale were aimed at informing policy and practice at local and national levels. The inner fears, hopes and aspirations of employees involved in this unforgiving and traumatic change process were articulated throughout the case study. The context and conditions in which employees recovered from the

imminent possibility of losing their jobs to establish new career paths provided new insights in employee re-education and training methodologies and practices. It was only through fully understanding the change experienced by the employees and their managers could a best practice model or set of models be constructed to inform employee education and training in the future.

‘Case study is a strategy for doing research which involves an empirical investigation of a particular contemporary phenomenon within its real life context’ Robson (1993, p52). The experience of employees in Waterford Crystal, in government agencies and in education and training institutions were all included as they adapted to the changes thrust on them in this period of transformational change. Mature employees returned to college at a time of tremendous pressure at work, in the home and with little formal education to establish a new base of employability and retain employment. (Stevens, Schade, Chalk & Slevin (1993, p37) suggests that interpretivism in the study of human behaviour can only be understood when the context in which it takes place and the cognitive processes which give rise to it are studied. They also state that ‘the aim of qualitative research is not to measure but to understand’. In identifying and interpreting the many and varied reactions of the key participant groups a valid set of findings and recommendations on how best to accommodate future development needs of employees in similar circumstances was established.

The enquiry focused on an industrial setting in which educationally disadvantaged employees were successful in redeeming their careers, providing a sustainable competitive edge for their employer. To adapt and remain relevant in an ever-changing workplace employees were convinced enough to add new technology,

knowledge based qualifications to their skills portfolio. They retained their employment status and advanced their careers both within and outside the company. The changes that occurred in Waterford Crystal and in the wider world in the period 1990-2006 produced valid data which was thoroughly tested and evaluated. The length of the period dealt adequately with cyclical trends and which incorporated many successes and failures. Unusual circumstances and the once off successes were separated out as the evaluations were carried out. Only the findings that could robustly stand the test of time and be replicated were siphoned off and included in developing the recommendations.

The extended period of the research study and the depth and continuity of the change studied ensured that the findings were durable. In similar circumstances it was most likely that their replication would most probably achieve similar results throughout the country. The national industrial development strategy of moving up the value chain ensured that all industry and services were moving in the same direction. The same competitive pressures were experienced by all exporting companies competing in the global economy. The role and contribution of employee competence was paramount in exporting industry and services with marketing led companies servicing their customers as the priority objective.

It is up to the professional to evaluate the evidence made available from case studies and apply it in similar contexts elsewhere. Successful employee development initiatives in Waterford provide many insights into the nature of industrial change on the skills base of employees. A study of them would help in constructing a platform for the development of education and training programmes for employees over the

next decade. The case study captured the most salient learning points in an extremely turbulent period in the history of the company and of Irish industry – 1990-2006.

Case study methodology – why?

The human complexities associated with an organisation in transition to a knowledge technology base were captured and analysed through the case study. Remenyi et al. (1998) explains the phenomenologist understands that the world is not composed of a single objective reality, but rather is composed of a series of multiple realities each of which should be understood and taken into account. Case study is a powerful technique in answering who, why and how questions. The many different stakeholder perspectives and the variety underneath the official stakeholder line had to be accommodated. The power, culture, politics and influence had to be understood. The detail of decisions, events and developments were captured in minutes, records and reports. Responses and reactions were captured by the researcher as in-dweller and through the research phases. Bell (1993, p8). 'Case study is concerned principally with the interaction of factors and events. Methods of collecting information are selected that are appropriate to the task'. The breadth and depth of the investigatory process required multiple sources of evidence to uncover the core issues of educational disadvantage and competitiveness.

The case study approach is particularly appropriate for individual researchers because it gives an opportunity for one aspect of a problem to be studied in some depth within a limited time scale (Bell, 1993, p8). 'In many cases it can be as in this instance an extended time scale. Bell continues 'the great strength of a case study method is that it allows the researcher to concentrate on a specific instance or situation and to identify,

the various interactive processes at work'. These processes may remain hidden in a large-scale survey but, may be crucial to the success or failure of systems or organisations.

Bell (1993, p9) cites Bassey (1981) 'who takes the view that an important criterion for judging the merit of a case study is the extent to which the details are sufficient and appropriate for a teacher (executive manager or training manager) working in a similar situation to relate his decision making to that described in the case study. ' The relatability of a case study is more important than its generalisability'.

Bassey continues, 'if case studies are carried out systematically and critically, if they are aimed at the improvement of education, if they are relatable, and if by publication of the findings they extend the boundaries of existing knowledge, then they are valid forms of educational research'. Bell states that a successful case study will provide the reader with a three- dimensional picture and will illustrate relationships, micro-political issues and patterns of influences in a particular context. In developing an understanding of the complexity of the Waterford Crystal transformation and the human resource development strategies adopted it was apparent how related the regeneration processes and findings to industry and employee cohorts.

'A successful study will provide the reader with a three dimensional picture and will illustrate relationships, micro-political issues and patterns of influence in a particular context' Bell (1993, p9). Stake (1995) very gently castigated fellow researchers for overstating their findings. He continued 'it is not uncommon for case study researchers to make assertions on a relatively small database, invoking the privilege and responsibility of interpretation'. To avoid this pitfall the researcher used a range

of research tools and engaged with different stakeholder groups at different levels in each stakeholder group. Five phases of research were completed with different groups and involved two sets of extensive interviews and three surveys with managers and employee students ensuring the objectivity and integrity of the findings.

To counter the one expert, one dominant perspective syndrome the five research modules involved various stakeholders and participants from the various work categories and levels and their inputs were cross-checked to produce the findings. Varying disciplines and responsibilities were engaged to test emerging theories and their potential to be replicated successfully in similar situations elsewhere. Phase 4 of the research was used for this purpose as it involved employee, students from a mix of organisations, engaged in part-time education. Their evidence tested the reliability and how the findings could be replicated. The widening of the research base helped strengthen the findings and validate the main research findings.

The comprehensiveness of the approach aimed to produce valid findings from which solid and workable recommendations could be constructed. The case study researcher typically observes the characteristics of an individual unit (firm), Cohen & Mannion (1985). The purpose of such observation is to probe deeply and to analyse intensively the multifarious phenomena that constitute the lifecycle of the unit with a view to establishing generalizations about the wider population to which that unit belongs'.

Generalisations are not always a necessary outcome from a research study as Stenhouse (1985) asserts. Providing case reports on which the reader can exercise

judgement is a valid outcome. Given the one international and national business environment context but the many individual organisational complexities and unique competitive situation it is necessary for manager professionals to exercise their judgements on relatability and on being able to customise their solutions to fit their specific circumstance.

Stake (1995) drew attention to naturalistic generalizations 'conclusions arrived at through personal engagement in life's affairs'. In using case study methodology the researcher personally engaged in capturing the key changes to the operational base of the company and in dealing with the educational needs of employees faced with job and skill obsolescence. In examining employee education the researcher focused on exploring relevant issues around employee educational recovery programmes and their capacity to contribute to gaining competitive advantage.

It is to be expected and recommended that experts in industrial development and employee development cast a cold professional eye on the findings and recommendations. Nevertheless the research outcomes in this particular thesis were developed from the multiple realities of restructuring and rebuilding the skill base of the workforce throughout the 1990s. In this type of dynamic, challenging environment there was no resting place for manager and worker, researcher, education provider, stakeholder and shareholder. All the participants grappled with numerous conflicting perspectives, realities and difficulties.

The multiple realities existing in a change environment states requires a qualitative research approach enabling the researcher to interact and minimise the distance

between researcher and research subject according to Creswell, (1994). Often the different interest groups engage in competing for scarce resources, for priority rating, as the organisation and its component parts seeks to build a competitive edge in an ultra competitive business environment. In the private sector in particular, at all times and through every change the market place is the final arbiter. Competitiveness and employability best serve the market and the customer. It is the customer who pays the wages and the income to keep the business moving.

The location for the case study, experience of the researcher, the subject under review and project parameters all served to convince the researcher that case study was the most appropriate methodology to discover a true understanding of the complexities at play. Stevens, Schade, Chalk & Slevin (1993 pp37-57) point out that qualitative research is not designed to measure but to understand. The interpretive and evaluative nature of the study sought to gain an in- depth understanding prior to making recommendations to assist in the future development of employee education programmes. Each stage of the research was checked and validated and the best possible evidence was gathered and scrutinised in completing this case study.

Case study research provides scope to investigate the contribution of employees in the workplace and their impact on competitiveness. Case study explores and exposes interactions between the main stakeholder groups. The context in which employees engage in their own development and the competitive imperatives in which business survives and grows becomes transparent through it.

In developing the case study structure and approach the researcher completed an initial literature review on industrial change, competitiveness and human resource development. A trawl of company records, reports, plans, strategies and industrial relations agreements was carried out capturing developments and milestones in the company. Its progress and the development of employee competence were captured. The literature review included the examination of records and reports and informed the design of the research trail.

Researcher as participant-observer.

The researcher was a full participant in this study. As architect in chief of many of the education and training initiatives developed to assist employee's transition to the knowledge, technology workplace he developed a clear understanding of the issues of access to education and training for disadvantaged employees. He was involved in the restructuring and reengineering of the organisation and in parallel in the planning, designing, delivering, recording, evaluating, and improving education and training programmes on a consistent basis. The programmes were developed against a background of ongoing change and competitiveness. Yin (2003) Participant observation is a special mode of observation in which you are not merely a passive observer. Instead, you may assume a variety of roles within a case study situation and may actually participate in the events being studied.

The researcher as an in-dweller had acquired a complete understanding of the environmental and organisational change. The training and communications team were invariably first into the field, engaging in and advising on the design and shape of the new change proposals. To this end the researcher met with executive

management regularly, ensured that the education and training team were represented on new change and improvement projects from the beginning. He was consistently involved with management colleagues when new processes were being commissioned. He was a central figure on all the main industrial relations negotiations from 1990 to 2005 having a major input into shaping the design of the change programmes. With the human resources and training team he was charged with providing the necessary upskilling programmes to ensure its implementation.

A key issue with the researcher engaged as a full participant is according to (Stangor 1998), reactivity. Throughout the case study period the researcher was fully accepted by the participants both executive management and unionised shop floor workers. He had over the years held a position of trust with both management and worker. His primary goal as training manager was to encourage and support employees returning to education and training and in helping them to transfer the learning into the job with a positive impact on competitiveness.

The researcher has been to the forefront in influencing the shape and design of organisational change and employee development. He has also been in a position to examine independent and external evaluations and subsequent programme design changes and improvements to better meet employee and employer needs.

He held a deep level of experience on the organisational change process, its history, culture and values and the special circumstances and development needs of employees. The company reciprocated in accommodating him with this PhD thesis

providing office facilities and open access to their extensive network of business network.

The case study approach involves empirical research of an ethnographic nature. The researcher as a trusted in-dweller has had to maintain a discipline in ensuring objectivity. Throughout the study he has referred issues to independent internal and external sources for their input and judgement.

Stake 1995, Yin 2003, Kane 1995, Bell 1993 and Creswell 1994, all stress the richness of the experiences and insights contained in the many realities and new meanings encountered as the speed of change accelerated throughout the period. The multiple realities experienced by the varying stakeholder groups informed the solutions and the new initiatives launched. Throughout this period of change it was discovered through good and bad experience that that what was good for the company was invariably beneficial to the employee. This emerging realisation formed the basis for a more collaborative industrial relations environment. The real competition came from the external environment and not from within the organisation itself.

The viability and performance of the company was directly related to the progress of the employee. Several major employee benefits and incentives were organised to ensure that was so. Profit share scheme, share save schemes were but two that linked company performance to employee remuneration levels. In this period of transformational change all the arrows were pointed in the one direction, competitiveness through people.

Access to relevant research papers

The researcher is a member of the Expert Group in Future Skills Needs, which is managed by Forfas and comes in under the responsibility of the Department of Enterprise, Trade & Employment. He has also served on enterprise related committees at local and regional levels and has engaged with a broad cross section of industry and education organisations and their representatives. He has open access to many research reports, studies and data relating to industrial development and employee development nationally and internationally.

He has been involved in organising consortiums including private and public sector companies and education and training providers addressing issues around educationally disadvantaged employees in industry. Many of these consortiums were led by Waterford Crystal and piloted new approaches to employee development. Many barriers were identified and removed temporarily while the programme was being run. New supports were designed and developed, also temporarily, to ensure the success of the pilot programmes. Dissemination of outcomes was invariably insufficient to ensure their transferability throughout the country. The best project outcomes did not get sufficient support and funding to make an impact nationally. A golden opportunity was lost in redressing the education deficit of many employees who would have benefited enormously if the best practices developed for the pilot projects had been disseminated countrywide.

Cooke (2001) in a report 'Learning with Europe' provides a description of the company's involvement in EU human resource development programmes and the outcomes. These projects played a significant part in successfully redeeming the

education deficit of employees in Waterford Crystal and the other consortium companies.

The research process

The research process involved a comprehensive period of study and reflection. In choosing case study methodology the researcher aimed to draw on his own extensive experience of change management and employee development in the proposed setting and inform the design of the research process.

The process involved an extensive trawl of all in-company documentation relating to business development and employee re-education and re-training strategies and plans. From 1990 onwards an extensive library of information was built up in recording all the key developments within the industry and in its relationships and involvement with the local, national and global business environment.

Qualitative research methodology was more suited to make sense of a complex and moving set of variables involved in the industrial change environment in which the employee was situated. There was a need to achieve a clear understanding of what the cause and effect of change initiatives and how the different elements related and affected each other. The dislocation suffered by those who lost out in the technological change required new and urgent policies to equip people with new skills and training required for the next generation of enterprise. The dislocation of long serving workers with low formal education based skills but with huge work experiences is at the heart of the study.

The design of the research prompted the inclusion of five research phases to ensure sufficient insight to unearth appropriate solutions to the problems encountered by employees. The research phases were predominantly qualitative based with a small number of quantitative instruments employed to support the overall approach. (Kane 1995) states that research techniques are a bit like fishing flies: you choose the right one for the fish you want to catch. Research techniques complement and support each other. To ensure validity the researcher combined a range of sources with a range of techniques triangulating the basis of the findings from which the recommendations were made.

The following research instruments were used in the phases:

- (1) The first research module involved a set of interviews with ten senior (executive) managers from across the organisation including manufacturing, logistics, marketing and corporate affairs. Semi- structured interviews were employed. Eighteen questions were prepared and checked for relevance with senior management colleagues. The questions were aimed at discovering senior management's understanding of business competitiveness and the new skills and competencies needed to achieve it. The questions identified future changes and how employees might best respond to them. Changes in the business environment impacting on competitiveness over the previous five years and the coming five years were explored. This research module was undertaken in late 2003 and an analysis of the findings set the basis for the second phase.

(2) The second research phase involved designing a survey questionnaire which was sent to fifteen middle / junior managers and twelve shop-floor employees who were responsible for implementing the change process on the ground. This module contrasted and compared executive management with middle / junior management and shop-floor employee's understanding of competitiveness and employability within the one industrial change context. The objective of the phase was to compare and contrast the outcomes with phase one and write up the context in which employees were being encouraged to return to education. The first two research phases established the context and realities of industrial change and future challenges on employee capability.

(3) The third phase involved a set of structured interviews with 112 employees from different disciplines and backgrounds who had redeemed their education deficit. These employees had returned to education to add new skills to their employability portfolios. The interviews involved sixteen questions designed to explore the issues of educationally disadvantaged employees redeeming their educational deficit. All of the employees had either retained their re-engineered positions or had moved on to more responsible knowledge based jobs.

- The fourth phase moved outside the company and the researcher surveyed 105 adult students in the Waterford Institute of Technology as part of a triangulation strategy on the experiences of employees returning to education. The employee/students surveyed were not all disadvantaged and were completing a wide mix of courses. They were employed in private and public organisations in the southeast region. A number of Waterford Crystal

employees were involved. While the Crystal employees were a homogenous group supported with a range of incentives and a strong learning culture the institute group consisted of employee students from a wide spread of employers the majority of whom did not pay course fees. The institute cohort of employee students were all experiencing change and pressure at work. By involving this broad mix of background and circumstance it was possible to validate the overall findings from the five phases.

The college survey received the support of the teaching staff which drew a 75% response rate. The findings from phase four linked in to those from phase three. The common difficulties experienced by employees in education in a part-time capacity were highlighted. The barriers were common across the two groups, phases three and four. They included distance from the college, cost of course fees, time off from work, family and recreational responsibilities and interest. The personal struggle with new concepts and study disciplines through good and bad times were highlighted.

(4) The fifth and final research phase involved surveying two categories of employees who were completing first time back to education programmes. The vast majority from both categories had joined the workforce without completing a second level education. A consortium of business and educational institutions was organised and co-ordinated by the researcher on behalf of Waterford Crystal to develop and manage both programmes.

This initiative evolved from the piloting EU human resource programmes aimed at tackling educational disadvantage. These EU pilot measures ran from the mid 1990s

to 2002. The analysis of phases 1-4 included responses from employees who were involved in the projects and who benefited substantially.

The final phase five tested the relevance of two nationally accredited prototype courses of the kind of response required to address the issues of competitiveness and employability at a national level. The EU pilot measures drew wide co-operation from a cross section of stakeholders including the most disadvantaged employee category. The impetus, innovation and flexibility had disappeared once the final evaluation was over. In an attempt to provide a most suitable entry point into education for two outstanding category of disadvantaged employees taking on board all the learning from the past the researcher sought to form a representative consortium of influence and expertise to establish a national opportunity for this category of employee.

The programmes involved a '*Certificate in Employment Skills*' and a '*Diploma in Business Skills*'. And were piloted in Waterford and Dublin during 2004/2005.

Research trail – A series of sequential steps

In summary the research process involved a series of sequential steps and these included having to:

- (1) Choose the research subject. The researcher as a participant / observer has always held a deep interest in the education of employees who joined the workforce at a young age without completing higher second level education or its equivalent. In the new knowledge, technology driven economy the potential of this category of

employees to contribute was being stymied through their lack of a good secondary education. In many situations new job vacancies required a good secondary or third level qualification. In seeking promotion applicants needed to demonstrate their capacity to stretch to a number of levels beyond the immediate job vacancy. The benefits to employees, employers, government and society were being lost at a time of full employment and when the majority of new jobs coming on stream were skilled and when many old jobs and skills were becoming obsolete.

- (2) Review the literature including relevant books, journals, government research papers, in-company reports, international reports and research papers and the Internet.
- (3) Analyse company documentation including reports, papers and plans. These included several reports produced by the researcher.

These included seven critical papers written by the researcher:

- ‘Colliding with the Reality of Business Survival ‘ Cooke (1991), a comprehensive report of the defining industrial relations dispute from April to July 1990.
- ‘Learning with Europe’, Cooke (2001), a report and analysis of twelve EU human resource development projects involving the company throughout the research period. Several projects were targeted at educating and training particularly disadvantaged groups such as disabled employees and disadvantaged women.
- ‘Closing the Gap’ An Education Platform of Employability & Lifelong Learning, Cooke, (April 2002) was a proposal prepared for the President of the

National College of Ireland, making the case for the development of two FETAC courses for two different groups of educationally disadvantaged employees.

- 'Bridging the Knowledge Gap' for Employability, Competitiveness and Inclusion. Cooke, (May 2002) was produced as a discussion document to attract a mix of private industry and public service organisations into the consortium.
- Activating and Nurturing Employability and Competitiveness (November 2002) was the official submission to the Department of Enterprise, Trade & Employment's in-company training measure programme on the design, development and piloting of the two courses.
- Corporate Social Report (2004) Promoting Excellence and Sustainability captured all the education, training and community based initiatives of recent times.
- 'Finding the Other Way' (2004) represented one significant research phase, piloted to inform the Ph.D. process. It involved one hundred and twelve interviews with employees who had successfully returned to education and developed new career paths for themselves in the period 1990-2006. (see Appendix B pp4-237).

- (4) Review the role of the researcher as participant observer bringing a wealth of experience to the what, how and why of industrial change and employee development in the company and country during the 1990-2005 period.

- (5) Design a qualitative, case study approach involving a wide source of information and insight. The range of primary sources was interrogated through a variety of research techniques leading to the triangulation of data and its correct interpretation and validation.
- (6) Complete a pilot case study and report titled 'Finding the Other Way' which served as a trial run for the Ph.D. thesis and how best to develop it. This pilot study collated necessary information including background and change context.
- (7) Review of literature, bringing it up to date and drawing from it to influence the design and content of the research process.
- (8) Complete the analysis of the research phases.
- (9) Facilitate the emergence of rich data from primary sources using a variety of research techniques.
- (10) Produce findings / implications and a set of recommendations to inform policy and practice.
- (11) Ensure that evidence of the research trail, the process and results were recorded for analysis. The research trail was sequenced in a logical and transparent format to facilitate the reader's judgment on valuing the reliability of the findings.

On-going consultation with peer professionals

Throughout the research process the researcher held many meetings with a cross section of participant peer groups and representatives. Peer professionals from within and outside the company were consulted on framing the interview questions, designing the questionnaires, analysing the data and establishing the findings and implications. Comments and suggestions on appropriateness and validity were discussed at development stage. Independent, objective sources confirmed the appropriateness of the questions. The analysis was validated with internal and external sources. The objective was to achieve a true and fair view of the research information collated. The recommendations were robustly interrogated by two professionals one from within and one externally who had previously been employed in the company and both were graduates of the re-education process. The researcher holds the view that the results will be replicated in similar context provided the detail of the support framework is implemented in full. (see Figure 39, p388)

The progressive phases.

The early phases of the research took the form of exploratory case studies. Yin, (1993) explained that exploratory case studies are used to define questions and hypothesis for subsequent studies. 'Finding The Other Way' (July 2005) informed the researcher's understanding of how best to structure the overall research project.

This naturalistic nature of the enquiry in the form of an exploratory case study defined a number of questions that required further study. The questions were included in research phases four and five. The researcher moved beyond the case study setting in an attempt to triangulate and validate the findings prior to recommending actions. The research carried out through the pilot project centred on those who had successfully returned to education and carved out new careers for themselves in the new economy. They had with many dedicated supports overcome the handicaps. The company and education and training institutions collaborated in their educational redemption. Their stories informed the conclusions and recommendations as to what was needed on a national basis.

The report, 'Finding the Other Way' painted a comprehensive explanation of how 112 educationally disadvantaged employees redeemed their educational deficits. The research carried out in the pilot study provides much of the evidence for believing that a transformation in the qualifications of educationally disadvantaged employees can be achieved and it lies at the heart of the Ph.D. thesis. The objective of the pilot study was to undergo a research process that would help inform and refine the overall research approach. On completion, the shape and format of the final thesis became clear.

The outcomes from the first two research phases were taken on board while comprehensively researching the successful experiences of 112 employees. The 112 interviewees were selected from an approximate 900 employees who from 1990-2005 returned to education and established new careers for themselves in the workplace. All of the research participants had turned down several voluntary early retirement and redundancy packages in the late 1980s and early 1990s. After the initial shock of rationalisation and restructuring and cost improvements many employees realised that the old ways were gone forever. Cooke, (1991) argued in a paper on industrial relations at the time that 'walking backwards into the future' was not a realistic option for employees faced with a period of unprecedented change, which was to be driven, by new technologies and knowledge. The change process was gathering pace and was set to make further jobs and skills obsolete. The workforce and its union leadership would be made irrelevant if they refused to face the change head on and adapt to it. Fortunately in the following years the union leadership and the membership turned around and faced into the change with great commitment. Education and training was the key enabling mechanisms in this process.

Senior executives supported heavy investment in education and training resources. They encouraged many employees to return to college to gain new qualifications more relevant to the new future being created.

Many employees found themselves in mid career and at a crossroads. A new determination developed around redeeming the skill base, adding new technical and academic competencies to their employment portfolios. The local Institute of

Technology, Adult Education Centre and the Central Technical Institute provided many specialist programmes for them.

The 112 employees interviewed had voluntarily chosen to take the long route back to educational qualifications at a most difficult time in their working lives. They opted to take the lead in the restructuring process. They adapted to change, offering to re-deploy into new jobs and retrain while coping with family and recreational responsibilities. While involved in education they were willing to transfer the learning by seeking further work responsibilities. Their insights into the development journey and what motivated them were revealing. The barriers and supports encountered and the key milestones were valuable in designing the recommendations. Their views and observations were critical in drawing some firm conclusions, as no two elements in the change process remained static for any given period.

The early phases informed the design and content of the final thesis. It sharpened the approach to the final two research phases. On completion of the 5 phases of the research it remained as the core research phase with phases, one, two, four and five taking up a supporting and validating role. It was the successful mastering of the step change to acquiring new third level educational qualifications that held the key to the development of enabling future policies and practices around educational disadvantage.

Triangulation for validity and objectivity

Yin, (2003 pp85-86) cites six sources of evidence as being comprehensive and relevant. These are documentation, archival records, interviews, direct observations,

participant observation and physical artefacts all of which have been used in completing this study.

The case study provided the opportunity to use these sources of evidence and triangulate key findings upon which the recommendations were made. The scope to engage in a revelatory case study whose recommendations could influence policy and practice at national level was great. The capacity to generalise the findings was strong as the position of the employee, the changes in the workplace and business environment; and the educational dilemma facing disadvantaged employees were being paralleled across industry. A compelling argument for the transferability of employee development strategies could be presented based on the evidence made available through the research findings. With Irish business committed to competing at the higher end of the value chain in the global economy there was an immediate need to up-skill in particular those on low skills and qualifications. The employment of the skills and qualifications of employees to achieve competitive advantage was a national priority.

Triangulation was regularly used by the researcher in his role as training & communications manager throughout the period, 1990 to 2006. Responsibility for training involved the training manager, trainee's manager, the trainee and the training provider. The combined input of the partnership was critical to ensure that the most relevant and effective training programmes were developed. Training objectives were very clear and focused on results and expected performance improvement had to be delivered. Training as an investment was expected to show a return in both the immediate and long term.

The training team at Waterford Crystal Ltd was a service employed to enable and facilitate change to a technology-based process and to compete successfully in the global economy. In identifying, designing, delivering, recording, evaluating and improving training programmes the training team continuously sought to validate input and impact through on-going consultation and dialogue with the participant stakeholders. Dedication to continuous improvement consistently refined the training approach. O'Donoghue. (1998 p5) claimed that, 'In a fiercely competitive business environment innovation, flexibility and speed to market are competitive advantages we now enjoy' This statement by the Chief Executive Officer of the time represented a monumental achievement by the business and the capacity of the workforce to adapt and transform its skill base. Pre 1990 the workforce was predominantly craft and manually skilled. It was the flexibility and adaptability of the workforce, which played the most critical part in the turning around the business during those transformational years.

Company documentation including annual reports, business strategies and plans, restructuring and re-engineering plans, education and training plans were continuously analysed throughout the 15 year period. A comprehensive set of records and evaluations by internal and external auditors provided objective insights and perspectives on events and developments. A learning organisation emerged which accommodated a laboratory of innovation and creativity encouraged every employee to participate in up-skilling programmes. As the competence of employees increased, there was a corresponding increase in their willingness to get involved in negotiating, designing, implementing, evaluating and improving change initiatives. The overall

transformation process involved a journey of trial and error, change and improvement, adaptation and customisation as the organisation restructured its product range and business practices.

The research analysis and synthesis helped triangulate, interpret and validate findings and recommendations. Independent and experienced colleagues tested and validated each step of the process. The interview questions, survey questionnaires and findings were scrutinised by colleagues to confirm the relevance of emerging theories and findings.

In informing judgements on the best way to realise the potential of under qualified employees but with extensive work experience and skills it was essential to establish the views of key stakeholders, the relevant managers and training providers.

This wide source of relevant information sources helped develop robustness around the findings. While the main requirements remain constant such as the direction of the economy, the need to educate and train employees, the ground rules for competitiveness and the uncertainty in the business environment there are many variables that continue to change which require ongoing evaluation and analysis. There are immediate lessons to be learned that can form the basis for a successful approach to retraining employees in the future at national level. Every effort has been made to separate the constant from the variable and produce sound evidence that will facilitate professional discourse to discern the best approach in the relevant context.

Bassey, (1999 pp 52-53) raises the concept of the fuzzy generalisation and the many variables present where human and business complexities abound. He indicates that the professional perspective will be the final arbiter and will be able to distinguish and adapt having read the evidence and the results.

The case study tells the story, traces the footsteps and the journey. The milestones, inputs and outputs, evaluative insights are recorded. It cautions on uniqueness and limits. Where possible it stiffens up the interpretation of results with quantitative data. The researcher has recorded cause and effect of improvement initiatives both in organisation and employee development. In a complex ever changing environment the researcher is in agreement to leave the final interpretation to professionals who are employed to transfer the learning and make it work in alternative settings.

The target group of the study who are currently engaged in upgrading their skills and qualifications will welcome the recommendations from this case study. The government having chosen the only sensible option of a high technology and high wage economy has to consider a major initiative on employee education. The change process is set to accelerate and the need for continuous education and learning has become a priority issue for employees, the economy and society. Many employees have discovered that once they decide to re-engage in education a fully accredited, national certificate, diploma and degree in the relevant area of expertise is vital. Once on the technology based skills ladder there is a greater need to improve their educational qualifications to retain employment and ensure ongoing competitiveness.

The criticality of triangulation was a constant factor in validating the process and findings. In recording this exploratory and evaluative case study every finding has been the subject of in-depth interrogation.

Transferability and relatability.

The capacity to generalize outcomes from the Waterford Crystal based research study is very likely. Similar conditions exist on industrial competitiveness and the employability requirements of employees countrywide. Future change as industry moves up the value chain will bring a greater dependency on the skills and qualifications to sustain competitive advantage. The role of the knowledge worker will become more central to competitiveness as the dependence on knowledge and technology increases.

Employees will have to be accommodated in mastering the new technologies, concepts and processes and in leading the change process where possible. Research and innovation skills are critical competencies in securing the future development and growth of the economy.

Education is the basic enabling mechanism for improving the creative and innovative capacities of Irish workers operating in knowledge, technology based global economy. The re-education and up-skilling of the employees is the key enabling factor in building sustainable competitive advantage country –wide. It was the transformation of the skill base of employees that facilitated the transformation in Waterford Crystal Ltd. Priming innovative and creative responses among all categories and levels of employees in the new work organisation is the key to future

prosperity. If the approach adopted in Waterford Crystal is replicated countrywide the same results will be achieved. Employees have proven that if provided with relevant courses and supported properly they possess the capacity to fill the higher skilled and strategically important positions coming on stream throughout industry over the next decade and beyond.

Reliability of outcomes.

In designing the research methodology major emphasis was placed on establishing the reliability of the findings. The questions presented at the interviews and on the questionnaires in all five phases of research were referred to peer professionals for their objective assessment. The researcher was at all times throughout the research process keenly aware of the possibility of personal bias having been centrally involved in the main change issues throughout the period 1990-2006. Copies of written reports from the interviews were returned to interviewees for validation. Interviewees read and reviewed the reports and were encouraged to improve the accuracy of report. All interviewees engaged in this review with many of them adding and removing information to enhance the value of the information and the interpretation of their work-study experiences.

In phase three great care was taken to develop an accurate employee profile and capture the personal change process in work and college. In phases four and five the survey questionnaires were aimed at testing the validity of phases 1-3 with external employee students. At all times care was taken to ensure independence and objectivity and encourage openness and honesty. The process was framed to build trust and avoid any signs of reticence creeping in to protect reputation and position. In

explaining the purpose the interviewees were more than willing to open up and give the actual reasons, some very personal and painful as to why they pursued the different routes to a new career path.

External peer professionals some of whom had worked in the company as consultants and employees and then others who were on the outside with an interest in industrial change also validated the findings and conclusions. They were in a unique position to review the interpretation of what had happened and why it happened. They had little vested interest in shaping the evidence other than to call it as it was. Their inputs were taken on board and included in the final draft of the findings and recommendations.

Creating new knowledge

There are many specific areas of interest and complexity to be researched on employability and competitiveness that require further study and reflection. In completing the literature review the studies carried out by government agencies were identified. The departments of Enterprise, Trade & Employment, Education & Science, FAS, Forfas and its agencies have produced several white papers and research reports on various aspects of employee education.

The researcher was unable to source research reports on employees with low standards of formal education facing into a technology, knowledge based workplace. There are many surveys and reports available on access to education for adults and youth carried out by education and training agencies. This thesis covers the experiences of educationally disadvantaged employees struggling to survive and prosper in knowledge, technology based workplace. As the new economy is a

relatively recent phenomenon this category of the 'lost generation' has yet to earn the attention and priority from leading government researchers.

The researcher has to hand studies completed by government agencies such as FAS and ESRI who covered specific elements of employability and competitiveness. Indeed one such study commissioned by the National Training Advisory Committee in 2003 focused solely on collating all the relevant research completed in the area. This report represented the starting point for the commissioning of more focused studies on employee training and education by the Expert Group on Future Skills Needs. Some of these studies have been completed and the main one on identifying the current education and training of employees and the accompanying budget spend is in progress. But, that is for all employees, all backgrounds and qualifications.

On reading the National Training Advisory Committee (NTAC) report, it is crystal clear that this case study research on this category of educationally disadvantaged workers and their capacity to contribute to competitiveness is the first such study completed in an Irish context. Given the purpose and focus of the study, new knowledge and insights will be established that will inform policy and practice in employee education and training in the future.

The thesis is aimed at producing new knowledge through a fuller understanding of the potential of currently educationally disadvantaged employees to contribute in the new economy once their educational deficit is eliminated.

Chapter 4: Macro Context

A new industrial paradigm emerged in the 1990s.

In establishing the context in which educationally disadvantaged employees operated it was essential to consider the forces that were driving change nationally and globally. Two key statistics emphasize the openness and vulnerability of the Irish economy to changes in the global economy. From these statistics, see Figure 9 below it is clear that an adaptable and flexible workforce is needed to respond when major changes of direction occur and which impact the competitive performance of Irish based companies.

Most Globalised Economy
The AT Kearney Globalisation Index involving 62 countries representing 85% of the world's population rated Ireland as the most globalised economy in the world for three consecutive years. IDA Annual Report (2004 p.14)
(2) Ireland's –Exports and Imports – Exports of goods and commercial services in 2002 was 82.58% of gross domestic product (GDP) Imports of goods and commercial services in 2002 were 75.71% of gross domestic product. (GDP). Ireland was ranked 2 nd of OECD countries in both categories in terms of openness to trade and foreign direct investment.

Figure 9 An open and globalised economy, Annual Competitiveness Report (2003)

The transformational change that has taken place in Irish industry in both manufacturing and services since the 1990's have been deeper in its effect on the political, economic, social and technological environment than any change ever

experienced before in the history of industrial development in Ireland. The pace and depth of the change has challenged business organisations and employees to adapt to the demands of a global business environment in which change is the only guaranteed constant. Irish business and workforce have performed outstandingly well in the new knowledge, technologically based global economy. Greater challenges will be faced in the future as technology and knowledge dominate the nature, content and structure of work in developed economies both East and West.

As the Irish economy continues to move up the value chain in manufacturing and service operations, the demand for more highly skilled employees at all levels is growing. The economy has reached a point where the continued success of Irish business is being stifled by a shortage of skills in a number of disciplines and employment sectors. Migrant labour is filling in many of the gaps in labour (people available for work) and skill shortages (skilled people available to fill specific skill shortages) but this solution is unlikely to last as other advanced economies with diminishing working populations compete for this confined pool of skilled workers in the European Union. Furthermore these countries that are losing their best and brightest are developing their economies and are beginning already to take steps to retain them at home for the rebuilding process

Educationally disadvantaged cohort of employees, 2006.

While Ireland has increased the output of third level graduates, the Enterprise Strategy Group, Expert Group on Future Skills Needs, Industrial Development Authority, FAS, Forfas, Higher Education Authority and the National Competitiveness Council have repeatedly drawn attention to the critical position of employees on low skills and low

qualifications working in basic jobs. There is a need now as labour and skill shortages occur that these experienced employees can, through appropriate education interventions move up and into higher skilled job vacancies. Several reports have emphasized the need to provide up-skilling opportunities for them to enable them to adapt to change and contribute at a higher level to the competitiveness of their companies.

Employees in the low education and skill category make up a significant proportion of the entire workforce. Increasingly they are being challenged to participate more in problem solving, teamwork and project work, and fulfil statutory requirements on health and safety and the environment and many other areas of work.

Education Profile of Population-(2000 –2004)

Over 750,000 adults between 25-64 years of age have little or no formal education qualifications, HEA Report, (2004)

There are 373,000 who have not progressed beyond lower secondary schooling and 433,000 who went no further than primary, making a total of 806,000 people- 44.9% of all 25-64 year –olds whose qualifications are known, who are not ready to progress to university and need to be reached by other means.

Ireland's Learning Poor – A Report from the Centre for Cross Border Studies, Paul McGill & Mark Morgan (April 2001, p37.)

Figure 10 A high level of educational disadvantage exists in Irish society.

This high number of people with such low educational qualifications is a legacy of past decades of economic stagnation and restricted educational opportunity. Those in employment without completing upper secondary education (600,000) see Figure 11 below, need special assistance to eliminate their educational deficit and enable them

to participate fully and in line with their abilities and potential in the new knowledge, technology based economy.

Education Levels of those at Work (2005)

Twenty nine percent of those at work between the ages of 25-64 have not completed upper secondary education (Leaving Certificate). In 2004/2005 approx 1.9 million people were in employment (2 million in 2006).

From Data Analysis of In-Employment Education and Training in Ireland Report (November 2005 p41).

Figure 11. Approx 600,000 educationally disadvantaged employees.

In a knowledge based workplace, where integration between work functions, levels and disciplines is an essential prerequisite in creating an agile, lean and responsive organisation, it is critical that the entire workforce has the capacity to learn and adapt at least in line with the rate of change. Continued success for the Irish economy will depend on the capacity of business organisations and employees to adapt and master a more challenging, complex and global based business environment over the next decade. There are many factors shaping the new work organisation in the new economy.

A complex business environment

Globalisation has been the most powerful influence in developing the new industrial paradigm. Ireland as an island nation exporting over 80% of its gross domestic product had to compete globally. Moreover they choose to compete at the top end of the value chain using the most sophisticated technologies, work systems and methods. The emergence of a range of highly sophisticated communications and engineering

technologies provided a one world, on time business connectivity system. Irish business and jobs throughout the 1990s transformed into this higher value competitive environment.

The working conditions of Irish employees changed from a stable and predictable set of working patterns and responsibilities to a more fluid set of goals and objectives deemed necessary to adapt to competing in an open and global business environment. Unlike its neighbour Britain, Ireland was a predominantly agricultural economy during 19th and 20th centuries. In the 1960s the seeds of an industrial revolution were sown with the signing of the Anglo Irish Free Trade Agreement in 1967. The growth of industry developed slowly as protectionist policies and barriers to free trade were removed. The industrial development process gradually gathered pace on entry to the European Economic Community (EEC) in 1973. From then on the development of industry outshone the modernisation of agriculture in terms of income and job creation. Agri-industry continues to play an important role with some major Irish multinational agri-industries successfully competing on the global stage.

In the 1980s agriculture and industry were complemented by a rapid expansion of the services sector. Watershed political, economic, social and technological developments in Europe and worldwide opened up many new trading opportunities for Irish business in the 1990s. As an exporting nation access to new markets offered many new incentives for business and employees to adapt and compete in the global economy.

In the early 1990s the most dramatic and transformational change ever occurred in Irish economic history with the introduction of communications and engineering technologies. The combined depth and pace of the change that it brought was without equal in the history of Irish economic development. Every work feature was influenced heavily by its capacity to improve business performance. Industry and services were re-engineered to adapt to emerging competitive imperatives. As communications technology facilitated the integration of global business projects it had a transformational effect on the day- to- day operations of Irish manufacturing and services.

The 1990s witnessed wholesale restructuring and re-organisation enabling a more responsive and agile response to market requirements. Many employers and employees in indigenous manufacturing companies were caught off guard with the speed and depth of the changes and the growth in competition. The comprehensive and arbitrary nature of the change closed down the most vulnerable industries.

This struggle for survival in the face of industry and global competitiveness challenged many employee categories to re-evaluate their career paths in the light of current qualifications. Employees with low formal education were urged to move quickly to address their education deficit and establish a level of employability within the industrial sector and the Irish economy. Changes in current job specifications, redeployment to new positions within the company or movement to new positions outside the company required the development of new skills and knowledge sets. A huge growth in job numbers occurred in the economy over the past fifteen years. Included in this expansion were the return to work of long-term unemployed

individuals, women in the home, returning emigrants and the recruitment of a substantial number of migrants from within and outside the European Union.

Industrial Change – Irish Labour Force.

Numbers Employed:

Year	Employment
1994 2 nd Quarter	1,221,000
2005 3 rd Quarter	1,987,000
Increase in job numbers in 11 year period	766,000

Figure 12. A rapid expansion in job creation, CSO, Quarterly Household Survey – Q3 2005.

Figure 12, highlights the dramatic increase in employment in the Irish economy achieved over the past 11 years. Engagement in lifelong learning was heavily promoted by training managers and enterprise development policy makers at the time. The year 1996 was designated by the European Union as the year of Lifelong Learning. It was apparent that in the foreseeable future the only certainty would be continuous change and learning for both organisations and employees. There was universal agreement among the main stakeholders of the critical need to retrain and re-educate employees. They needed to acquire higher levels of skill and knowledge and contribute in line with their potential in addressing the needs of business. It was an essential prerequisite for employees who aspired to move to new higher skilled jobs or to survive within a much-changed workplace. The vast majority of the new jobs coming on stream were skilled jobs and this trend was set to continue over the next decade.

In many workplaces complex, parallel developments were taking place. Business was being restructured, employees were being retrained to adapt, shareholders were demanding a return on their investment and competition was growing as trade barriers were being removed and the global economy was growing in size and opportunity. In Waterford Crystal Ltd improved year on year performance was achieved throughout the restructuring and retraining process. This complex and pressurized mix of objectives provided a momentous challenge for both manager and employee. The opportunities outnumbered the problems for businesses and employees and it encouraged a positive response from all stakeholders. A sense of renewal and economic regeneration promoted a 'can do' attitude encouraging employees to improve their qualifications to compete for the new skilled jobs predicted by the economic analysts.

The negative consequence of ignoring the realities of business survival was an equally strong motivating factor. A great sense of urgency developed around organisational change and employee up-skilling throughout the 1990s. Many studies have been carried out on the general need to up-skill every category of employee. Very little has been done to address the particular needs of employees who are educationally disadvantaged. This category of employee is facing into a more difficult work situation. All predictions for change to a more knowledge based and complex business environment have been surpassed over the previous decade. The Irish economy has become truly global. The skill and knowledge content of Irish jobs have increased as the modernisation of Irish industry and services developed.

Eighty percent of those at work today will still be in the workforce in ten years –2016 while most of today's technologies will have been replaced with new more sophisticated products. The change in the design and nature of work was most heavily influenced by communications, engineering technologies and global competitiveness. Greater demands have been placed on employee competency from 1990-2006 than all the changes combined over the previous fifty years. New job content specifications and person specifications were developed overnight as indigenous industry and services transformed its operating base to compete in the global economy. In parallel, major foreign corporations were raising the bar for local suppliers and they continuously strove to improve customer service and secure a competitive edge.

Indigenous companies adapted and re-engineered their processes and systems. Due to historical circumstances, past protectionist policies, age, lack of investment, industrial relations customs and practices they were often unready to face the new challenge. Global corporations locating in Ireland benefited from starting in a green field site and taking the best most suitable work practices globally with them. They could hire the most suitable and trainable labour, install world class manufacturing standards and create a world –class business from the beginning. They hired many who were young, highly qualified and eager to learn. Their experience was in sharp contrast to that of indigenous industry that were struggling with a lifetime of old outdated work practices. They were challenged to transition to the most modern competitive practices in a short few years. The change imposed on indigenous industry was deep, painful and transformational. Figure 13, outlines the yearly job gains and losses recorded from 1994 to 2004 in manufacturing.

Industrial Change – Job Gains and Losses

Year	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Gains	23,034	26,146	28,173	30,524	32,227	35,983	44,874	29,816	27,446	22,769	25,291
Change	7,061	10,660	12,574	16,022	14,481	14,482	24,001	-3,775	-7,889	-7,350	-1,091
Losses	15,973	15,486	15,559	14,502	17,746	21,501	20,873	33,591	35,335	30,119	26,382

Figure 13. Annual turnover of manufacturing jobs.- Forfas Annual Report (2003 p18).

The manufacturing sector accounted for all of the net decrease in employment in 2003 with 21,500 jobs lost and 14,000 jobs created in manufacturing. The internationally traded sector was able to replace job losses of 8,500 with the same number of job gains in 2002. The 2004 figures were taken from Forfas report at <http://www.forfas.ie/publications/forfas050509/forfas050509-employment-survey-2004-webopt.pdf>.

The new qualifications needed by long serving workers in indigenous industry were very difficult to acquire through second chance, part-time, adult education provisions. There was no transformational response from government and education providers to accommodate this new requirement from industry. The skill and knowledge based qualifications required by Irish workers from the 1990s onwards were very different in content, delivery methodology and accessibility criteria. Operational best practice as exemplified by the best companies in Ireland and abroad became the new standard for all companies operating in the country. With 82% of products and services being exported the vast majority of companies were competing in the global economy. Best in the world was the benchmark for those wanting to lead in the global economy.

Up to the 1990s change was incremental and somewhat predictable. In the 1990s over a few short years the operating context for industry and services changed irreversibly as government policy, globalisation, EU harmonisation policies and industrial competitiveness criteria combined to unleash the Celtic Tiger. A seismic step change in the nature and content of work occurred for all categories of employees in the Irish workforce throughout the 1990s. The clear message to Irish industry and employees at the time was to 'adapt or close down'.

The National Competitiveness Council Annual Report, 2005 forecasts that eighty per cent of all new jobs coming on stream over the next decade will be skilled jobs.

Age Profile of Labour Force

Age	No. Of Employees	%
15 -19	70,200	3.9
20 - 24	221,300	12.3
25 - 34	505,560	28.2
35 -44	439,600	24.5
45-54	341,800	19.0
55- 59	117,700	6.6
60- 64	63,100	3.5
65+	35,500	2.0
Total	1,794,800	100%

Figure 14. A young productive workforce –CSO Quarterly Household Survey– Q2, 2000.

Employees between ages 15 and 54 years constitute 87.9% (from 2000 base level) of the workforce. Over 80% of current employees will be expected to be at work in 10

years from now- 2015 while current technologies, work methods and patterns and structures will have changed significantly as will the competitive business context.

These jobs will require qualifications, at a minimum a basic Leaving Certificate standard of education or its equivalent. Training for these jobs will include learning new work concepts and operating principles, which require a good basic education to facilitate it. New working principles grounded in knowledge and technology need a basic second level education providing them with the capacity to continue learning and developing the necessary skills. Access to third level education is hugely important as worker potential and new job opportunities open up many new career options for employees. Having decided on building a high value economy there was an immediate need to ensure that experienced and highly motivated employees were provided with an appropriate level of formal education to cope with it.

Survival and growth were the two main factors driving industry and services from 1990-2006. Employees working in the most open economy in the world were building a new dimension of fitness to compete globally. Many employees re-deployed several times within their company or took redundancy or early retirement and moved on to new employment. In some organisations jobs were lost and new jobs created with employees offered the choice of re-applying for the new positions. Throughout manufacturing industry in particular, employees participated in learning new systems, processes, work practices and techniques with or without the necessary education to do so. The concept of work for life replaced the concept of a job for life in many work organisations. Many new exciting opportunities opened up for those with third level

education qualifications and valuable work experiences gained in the old economy, pre 1990.

In order to follow and adapt to the change and retain employment status those who were committed opted to redeem their skill and knowledge base, which involved adding new technology, based skills to their already impressive portfolios. As new processes, systems, work practices and jobs were developed, industry and services competitiveness improved. Employees moved laterally and vertically within companies. Some employees opted to change their careers. Others returned to part-time or full-time education to gain qualifications more relevant to the new economy. All the time though more attractive employment options were opening up in the new economy.

There was an increase in demand for skilled workers which were accompanied with high remuneration and benefit packages. In specific sectors experiencing skill shortages, work disciplines such as information technology, financial services, construction, trades and engineers gained premium status as demand exceeded supply. The construction industry paid improved wages for general and semi-skilled grades as the building boom took off. As the economy boomed new and more fulfilling careers opened up for educated and qualified workers. Women working in the home were attracted back into the workplace. Many of these women who had worked in the public service in the early 1970s were subject to the marriage ban and were forced to leave their employment at the time. Having reared their families they now wished to return to work to fulfil themselves and improve their living standards.

Emigrants having gained valuable experience abroad were attracted back with the promise of attractive employment packages. The government through FAS developed several promotional strategies enticing migrant labour into the country to fill a wide variety of vacancies. CSO, (QNHS Q4 2005 p1) 'In the twelve months from June 2004 to June 2005, 93,000 new jobs were created while 30,000 old jobs were lost'. This figure represented the highest number of new jobs created in any twelve-month period in employment history.

The government is currently launching a new migration bill offering green cards to skilled non-EU workers to encourage them to fill job vacancies in highly skilled and attractive employment categories. The green card will allow them and their families to work and settle in Ireland. This strategy is aimed at solving some of the most serious skill and labour shortage problems, which is currently holding back economic growth.

In rare cases such as Waterford Crystal, transformed companies invested heavily in retraining programmes. New foreign companies recruited the skills they required which was one of the key attractions in locating in Ireland. The major paradigm shift from industrial to technology based work marginalized low skilled and low educated workers. These workers had been central to developing the conditions, which created the new paradigm. In a previous working life they were highly motivated and experienced workers. When the new paradigm dawned many of them were confronted with learning new skills in order to retain employment or seek new alternative employment elsewhere. Access to a comprehensive education programme taking into account their current qualifications and experience was urgently needed by them to build new careers in the new economy.

The main factors which created the new industrial paradigm included:

Global

- The development and massive impact of information and communications technology in all areas of business performance.
- The fall of the Berlin wall and the old communist regime of Eastern Europe.
- The implementation of European Union Treaties including the European Monetary Union.
- The expansion of the European Union to 25 member countries plus two further additions in 2007 and others to follow at a later date.
- The liberalising of international trade through important world trade agreements.
- The entry of Eastern Europe, China and the Far East into the free market system in the early 1990s offering new, low cost labour capable of producing a wide range of consumer goods.

National

- The IDA's success in attracting record levels of foreign direct investment.
- Social partnership success in stabilising industrial relations and moderating wage increases in favour of a broader and inclusive package of social improvement measures.
- The emergence of the Celtic Tiger economy and the subsequent growth in employment (+800,000 between 1994- 2005 to two million workers).
- The achievement of an average growth rate of 5% per annum (1995-2005), which is more than double the growth rate, recorded by the European Union.

- The emergence of a committed entrepreneurial class powered the development of the new economy. Low corporation tax and interest rates primed many new economic activities. Success in culture, music, arts, politics and sport at international level generated a sense of overall well-being. The success of the Irish soccer team in the late 1980s and early 1990s boosted the national psyche, self belief and confidence
- There are currently 240,000 companies registered for VAT in Ireland, which is a record number. The development of the International Financial Services Centre has been an outstanding success. The new young generation of Irish people are very competent and ambitious and have established many successful companies in Ireland and abroad. Highly qualified graduates from an expanding third level sector, returned emigrants and migrants have provided a new cohort of knowledge workers creating a new dynamic, which has primed new economic activity.
- Between 1990 and 2006, two major national plans involved major branches of structural and social funds from the European Union helping to increase economic activity and an economic boom never before experienced.

This combination of global and national political, economic, social and technological change posed serious challenges for industrial competitiveness and employee development. The implications were particularly serious for employees in mid-career whose specialist technical, craft skills had become obsolete. The craft technical had not required a Leaving Standard of education in earlier times in order to master them. In effect, the very sharp transformation in industry from craft- manual to technology-

knowledge placed a huge burden on employees to quickly redeem their education while training in the new higher order skills sets.

Discovering a 'lost generation' of potential.

This category of educationally disadvantaged employees in the 1990s to date represented a 'lost generation'. Their old skill base was systematically undermined as the demand for their craft skills diminished. As the general workforce up-skilled they were caught stranded without the necessary education to enable them to compete for the higher skilled jobs coming on stream. Many of them redeployed to lesser positions with the aid of monetary compensation packages. They possessed many fine work attributes and experiences including a wide base of tacit knowledge and skills. The new developing knowledge economy was recruiting employees with a good basic second or third level education capable of adapting to more knowledge, technology work concepts, principles and practices. The education deficit of the mature industrial worker was denying them the opportunity to realise their potential in the new economy. In Waterford Crystal this category of employee returned to education in droves to make up the deficit.

The low formally educated but many highly craft skilled and experienced industrial workers were in fact prime candidates for retraining as they possessed a wealth of industrial experience, a strong work ethic and a successful track record. They had excelled in the old economy and with substantial domestic responsibilities were anxious and willing to return to education. Furthermore in helping to create the Celtic Tiger economy following a period of high unemployment in the late 1980s they had experienced the tough times and were not prepared to stand idly by and watch the

fruits of their labour disappear from their grasp without a fight. They certainly were not prepared to accept that their new employment status reduced them to languishing at the low end of the new skill and employment order.

The disappointment and frustration of skill obsolescence was countered for many by the growing number of new employment options which offered many opportunities for both skilled and unskilled workers. In the Dublin and eastern region redundant employees were in the main able to find new jobs. When large industries closed in the other regions it was much more difficult to acquire a new position. As Dublin prospered new jobs outstripped the supply of suitable labour.

Following several years of adjustment the frustration and vulnerability of low qualified workers is beginning to resurface in 2006. Many displaced employees redeemed their education and moved on to more rewarding employment. Many others could not find the way to develop the higher qualifications to compete for the new more highly skilled replacement jobs. The education system does not provide the spread of educational options for employees to facilitate their educational ambitions. The cost involved, availability and choice of course, content of course, flexibility of delivery and the absence of co-ordination between employer, employee, education provider and government are barriers too high to be surmounted successfully by the vast majority.

The application of new technology- based concepts without adequate levels of education posed an extremely difficult and stressful challenge for employees. The vast majority refused to take it on and sought out a variety of compensatory alternatives

outside of the educational option. The new industrial development strategy of moving up the value chain required the social partners and government to develop a parallel transformation in the provision of education and training opportunities for employees. Those who joined the workforce in the previous four decades without their Leaving Certificate and whose key skills had become obsolete needed immediate assistance to help them secure employment. These employees now represented a disadvantaged generation of employees who were unprepared for working in knowledge, technology based employment in the 21st century. The structure of Irish industry and services exacerbate the difficulties in accessing education for employees. (see Figure 15 below).

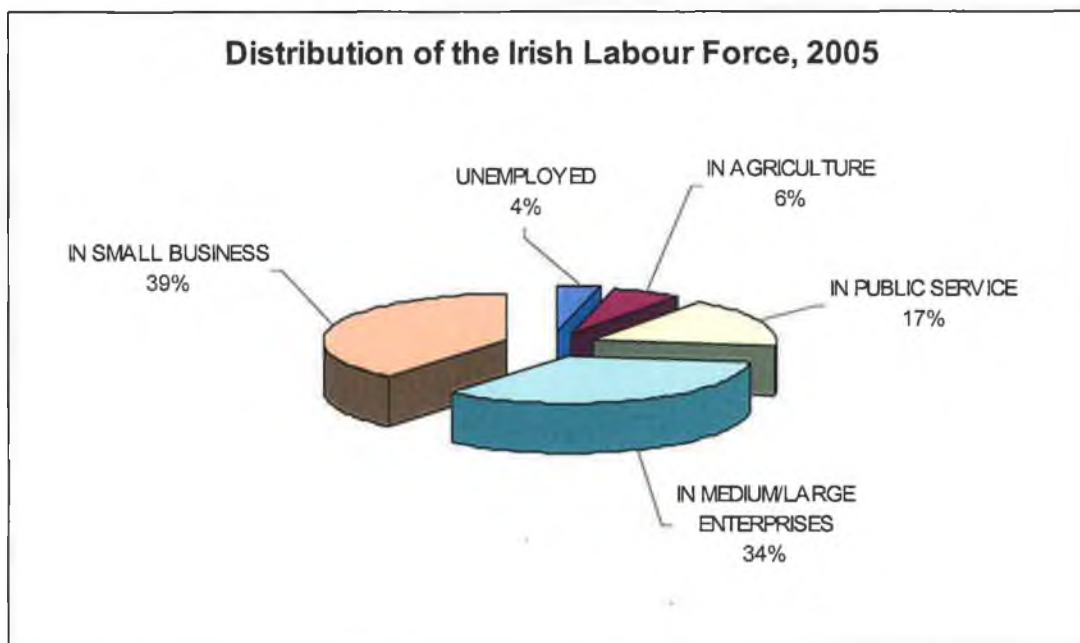


Figure 15 Distribution of the Irish Labour Force, 2005. Small Business Forum Report (2006)

According to the recent report from the Small Business Forum (May 2006) over 97% of businesses in Ireland are small (employing less than 50 people). There are approximately a quarter of a million small businesses in Ireland employing 777,000 (more than half of the total private sector, non- agricultural workforce). This

represents a dramatic increase in entrepreneurial activity and employment opportunity since 2000. Learning for Life (2000 p129) indicated that there were, 124,134 businesses registered including large, medium and small in 1999. Employees in small and medium enterprises are less likely to receive education and training than those in large companies.

Both the micro and macro context chapters highlight the key challenges, issues and changes that shaped the transformational change over the past fifteen years. The depth and breadth of the change was without parallel in the history of Irish industry. In choosing a suitable research methodology the aim was to facilitate the discovery of what happened on the shop floor as a range of interacting developments and influences changed the nature and content of job specifications to a higher more knowledge base. The business environment and subsequently the workplace became increasing complex throughout the period covered by the research study, 1990-2006. Different factors at global, national and local levels influenced, decisions and behaviours of key participant stakeholders. In building a book of evidence the researcher who worked at the heart of the transformation process identified, separated and analysed the key issues which impacted most heavily on industrial and employee development throughout the period under review.

European economic strategy- Lisbon 2010.

The European Commission's Lisbon Strategy (2002) is to become the most dynamic, sustainable knowledge-based economy, enjoying full employment and strengthened economic and social cohesion by 2010. This economic objective included encouraging all 25 European States to re-educate and retrain their workers, as

intellectual capital becomes the key sustainable competitive advantage in a knowledge, technology based world economy. The government needs to take immediate and radical steps if the hard won gains of the past 20 years are to be protected and further success achieved. Ireland has to be quick off the mark in developing an innovative and comprehensive approach to employee skills development. In attracting foreign direct investment, the availability and quality of the intellectual, technical and social competence of the Irish workforce is a key factor.

The challenge for many employees at the cross roads in terms of career path is to change or face redundancy. To assist in doing this there is a need to co-ordinate the learning resources available under a single body and develop a national approach to a national problem. Access to learning for all employees will create a learning economy and society most appropriate to the needs of industry in the 21st century.

Knowledge is in our nature

The IDA has successfully promoted Ireland as a location for foreign direct investment among the global business community. Following the success of global corporations in establishing competitive manufacturing units in Ireland in the 1980s and 1990s the IDA identified the high regard foreign investors for Irish workers and were quick to point them out as a key factor in their success. In 2003 the IDA produced a new marketing theme 'knowledge is in our nature' emphasizing the historical association Irish people have had throughout Celtic civilisation with knowledge and scholarship. The IDA separated out this unique competitive success factor and developed major promotional campaigns which were perfectly suited to knowledge, technology driven global corporations operating at the high end of the value chain. This major emphasis

on knowledge creation, innovation and creativity served to attract high value, technology, knowledge- based manufacturing and service industries, which placed a high priority on educational qualifications and high skills. The government having adopted this theme is duty bound to organise a high skill development strategy to support it. The market including employers and education and training providers will not address future higher order skill needs and will certainly not provide special supports for the most disadvantaged but critical group of wealth creators.

The increase in the importance of knowledge and technology can help create an inclusive, integrated team based workforce if employees can access the necessary learning opportunities. All the predictions are that knowledge based employment opportunities will increase dramatically over the next decade. It is predicted that 80% of all new jobs created will be highly skilled.

If access to knowledge based qualifications continues to remain out of the reach of large sections of the workforce it will have far reaching consequences for the economy and society in the future. Continuing success for the Irish economy and society depends to a large extent on the continuing education and training of every employee and citizen. In the digital age of the 21st century, computer literacy is as critical to employment as adult literacy –reading, writing and numeric skills were in the 20th century. If this education gap is not addressed a divide will open up between people with the skills, knowledge and qualifications to fully participate and develop and those without them who will be unable to gain and retain employment as every job in the new economy is now a skilled job.

On the one hand the qualified employee will retain employment status, high remuneration levels, and continuing access to education and development. On the other hand the low skilled and low formally educated employee will experience permanent vulnerability, temporary employment prospects, low wages and a range of barriers to participation in continuing education, which they will find increasingly difficult to overcome. Their inability to access adequate education and training will lead to greater exclusion and disenchantment. The new workplace as envisaged and promoted by IDA requires the re-education of the current workforce in parallel with recruitment of skilled immigrants to fill vacancies over the next decade.

Ahead of the Curve

The Enterprise Strategy Group in presenting its report in July 2004 included a competitiveness model highlighting five sources of competitive advantage for Ireland. One of these key sources are world-class skills, education and training (see Figure 14 below).

The report recommends a “One Step Up” for all employees but that particular attention is paid to employees with low skills and low qualifications working in low skilled employment. It also recommends that one body be responsible for managing this up-skilling process. It emphasizes that the quality of its workforce is a key sustainable competitive advantage for Ireland and is a critical factor in attracting foreign investment into the country.

Of all the advantages that Ireland can develop and over which it has absolute control it is the development of its workforce. The skills and competence of the workforce if

developed properly can remain a key source of sustainable advantage and remain the most important and potent advantage for the country in moving forward successfully.

Enterprise Strategy Group – Economic Success Model

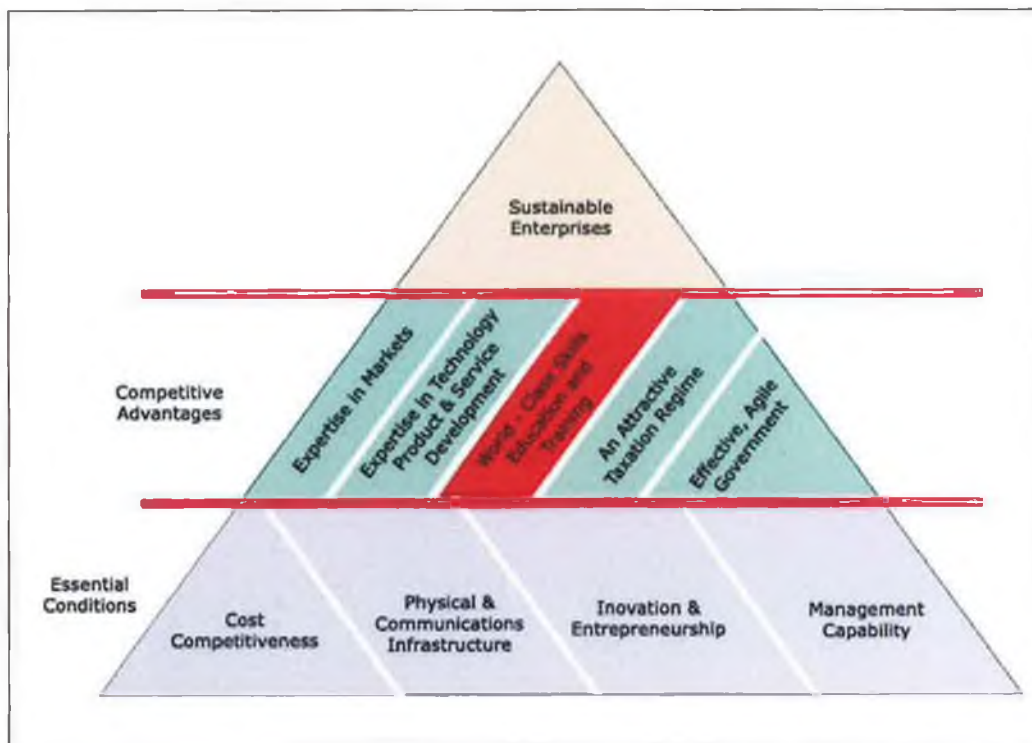


Figure 16. Competitive pyramid model, Enterprise Strategy Group Report (2004)

Figure 16 highlights how the Enterprise Strategy Group (2004) firmly placed world-class skills education and training as one of their five top sources of competitive advantage for Ireland in looking to the future.

A file of reports including; Depart of Education and Science, White Paper on Adult Learning 'Learning for Life' (2000), National Competitiveness Council, FAS, Forfas and IDA Annual Reports over the past five years have emphasized the need to invest in the up-skilling of employees to ensure that they can deliver on the changing

The global and national economic landscape in which Irish business operates requires highly qualified flexible and adaptable employees in forging a competitive future. As can be deduced from the research findings in figure 16 below the skills and qualifications required in the future are significantly different from that which was sufficient in the past. All indicators and forecasts suggest that there is a continuing trend towards higher value employment, more complex jobs, requiring higher skills and making product concepts that attract more discerning customers whose needs will provide the most challenging environment for employees in the future.

International Institute for Management Development (IMD) 2005.

Lausanne Switzerland – Assessment for Economic Competitiveness for over 60 leading economy's in the world. (figure for 2006, was sourced from the Irish Times 12th May 2006).

Ireland's place in the global economy:						
	01	02	03	04	05	06
Overall Ranking	7	9	11	10	12	11
Economic Performance	7	8	8	6	6	
Government Efficiency	7	10	13	13	10	
Business Efficiency	7	4	6	11	10	
Infrastructure	19	21	24	25	31	

Figure 18. Irish economy is losing competitiveness in key areas. (IMD Yearbook (2005))

The IMD statistics indicate a negative trend on Irish competitiveness across the ranking. There is a need to arrest the decline and a major contributor would be a higher contribution from a more skilled and qualified workforce. Productivity and innovation is a key measure of competitiveness at the higher end of the value chain. A

competitive needs of employers including foreign direct investment which is mobile and can locate in the most competitive regions of the world.

Every reputable economist, government and international report predicts continuing development of high value products and technologies in the advanced economies of the world. Productivity gains are the means in which competitiveness is secured and maintained. The skills, flexibility and adaptability of the employees are the most powerful contributor to productivity and innovative improvements in a knowledge-based economy. The need to provide access to education and training for employees in particular those who are low skilled and less well educated is becoming more urgent by the day.

Adapting to a more complex global business environment

Pre 1990's		1990 - 2015
Manufacturing- led	The transition requires radical changes in organisation strategy, structures, operational processes, procedures and in employee knowledge and skills	Customer- led
Hierarchical structure		Flat and lean structure
Bureaucratic		Flexible
Command & control		Individual responsibility
Efficiency		Effectiveness
Predictable		Change the only certainty
Objectives/targets		Mission/vision/ values
Functional structure		Boundary less
Confined markets		Global market
Unitary state		Global alliances
Consolidation		Growth
Customers		<u>Our</u> customers
Product manufacturer		New product developer
Job demarcations		Multi-skilled employees
Shareholders		Stakeholders

Figure 17 Organisations in transition.

continuation of the negative trend will lead a further loss of competitiveness and jobs, which will have major implications for the economy and society.

Garelli (2005) IMD World Competitiveness Yearbook Executive Summary identifies three competitive trends. In the 1980's productivity increased through a strategy of 'working better' through quality and reengineering techniques imitated from Japan. Between 1995 and 2002 the production in world manufacturing has increased by 30% while jobs decreased by 11%. It can be summarized by doing more with less. In the 1990s productivity gains were obtained by a strategy of 'working cheaper'. Outsourcing was the name of the game, and as a consequence, companies multiplied partnerships with suppliers, distributors, marketer to offload non performing business entities. Since 2000 productivity gains are achieved by taking advantage of the differences in operation costs that can be found in international markets. The exploitation of globalisation as a means of cost competitiveness has become a key element of the strategy of international companies whether it is to supply the home market or a third country.

A key element in cost competitiveness is labour cost and currently comparisons include \$10.70 in Korea- \$0.70 in China- \$35.40 in Denmark and \$16.40 in Spain. Labour cost advantage plus an aggressive tax policy and attractive conditions for foreign investors can prove to be an unbeatable proposal. It is predicted that 700 million people will join the labour market in developing countries over the next 10 years. On the other side it is predicted that labour costs will rise quickly in developing countries as living standards improve and as they join the market economy. The competitive position of Irish industry and services is to deliver superior performance,

high productivity, in the high added value areas. The Irish economy is cast in the high value; high technology and high wage segment of the global and will not be able to change this position downwards without disastrous consequences for everyone. In opting for this position it is critical that the one resource that can ensure success – the workforce is highly educated and trained.

Every aspect of Irish business is either directly or indirectly connected to the global economy. Both private business and the public service support international activities in the European Union and throughout the world. A significant development in recent years is the rise in international investment by Irish people abroad. Irish Independent editorial 26th March 2006 indicated that investment by Irish people in foreign property will exceed €8 billion. Much more than that is being invested in foreign business. For the Irish economy and the Irish workforce the world of work has become truly global. This trend is set to continue in the future.

Pre 1990	1990-2005	2006-2015	Rationale
Global Domination	Global Exploitation	Global development	Improving living standards worldwide will aid co-operation and stability providing bigger markets for goods
Political Instability Economic instability	'War' on Terror Winners and losers	A shared world view Shared benefits	Review of global relationships will lead to a greater appreciation and respect for difference and potential.
Country	Corporation	Community	As corporations grow communities will become more political.
Trading Blocks	Global Economy /Reach	Added Value Relationships	Moves towards building trading relationship worldwide
Enterprise	Business	Entrepreneurship	Promoting entrepreneurship to sustain business viability
Manufacturing	Foreign Dir Investment	Supply Chain	Purchasing, producing and selling on time, to best advantage
Indigenous manufacturing	Competitive manufacturing	Low cost manufacturing	Manufacturing locating in low cost, high productivity areas
Organisations	Corporations	Global alliances	Global alliances forming within and across sectors
Hierarchical	Flat	Lean & agile organisations	Speed to market and innovation are competitive advantages
Production driven	Market Led	Product customisations	Product enhancement and customisation development
Rationalisations	Restructurings	Re-engineering	Business process re-engineering adds to competitiveness
Homogenous	Heterogeneous	Multi-cultural	Managing a rich diversity of talents, beliefs and values
Manual	Technology	Knowledge	Intellectual capital a sustainable competitive advantage.
Make	Market	Sell	Future emphasis will be on our ability to sell products
Product	Package	Experience	The discerning customer wants a complete experience
Creativity	Innovation	Research & Development	Success in R & D projects will sustain the economy
Quality	Cost	Customer service	The market place is the final arbiter
English language	Bi-lingual	Multi-lingual	Integration of race, colour and creed will fire the economy
Industrial relations	Employee relations	Partnership fora	The external competition needs undivided attention
1m Employees	1.8m employees	2.5m Employees	75% of jobs will be high skill and knowledge based by 2015

Figure 19 Influencers of change in the workplace.

Figure 19 illustrates the changes that influence the need for improved qualifications and work experiences in the Irish economy. The transitioning process can only be facilitated by up-skilling and education at all levels throughout the organisation.

Chapter 5: Micro Context

Waterford Crystal – 1990-2006.

Waterford Crystal Ltd as an exporting manufacturing company is very representative of the majority of large manufacturing companies in the country. Along with its fine crystal products it also engages in outsourcing and marketing a range of carefully selected product lines including linen, china, flatware, jewellery, writing instruments and holiday heirlooms from forty companies worldwide. Waterford is a member of the Waterford – Wedgwood group of companies which own a portfolio of international luxury gift brands. The corporation has a strong global presence transacting business in all six continents.

Waterford Crystal and its sister companies within the group operate in the most high value segment of the market where distinctive design, quality and customer service are the sources of competitive advantage. The entire product range is expensive and it sets a high expectation in customer service and satisfaction.

The demand for innovation on new product development and enhancements is constant. The relationship between the customer and the brand is very strong. This special relationship between customer and product is nurtured through a series of carefully planned initiatives including advertising in select magazines, artisan promotional events, new product launches, a collectors society and the visitor experience at Kilbarry which includes a visit to the gallery and a guided tour of the manufacturing plant with a full explanation of how the product is made. Over 300,000 visitors are received annually and become ambassadors for the product.

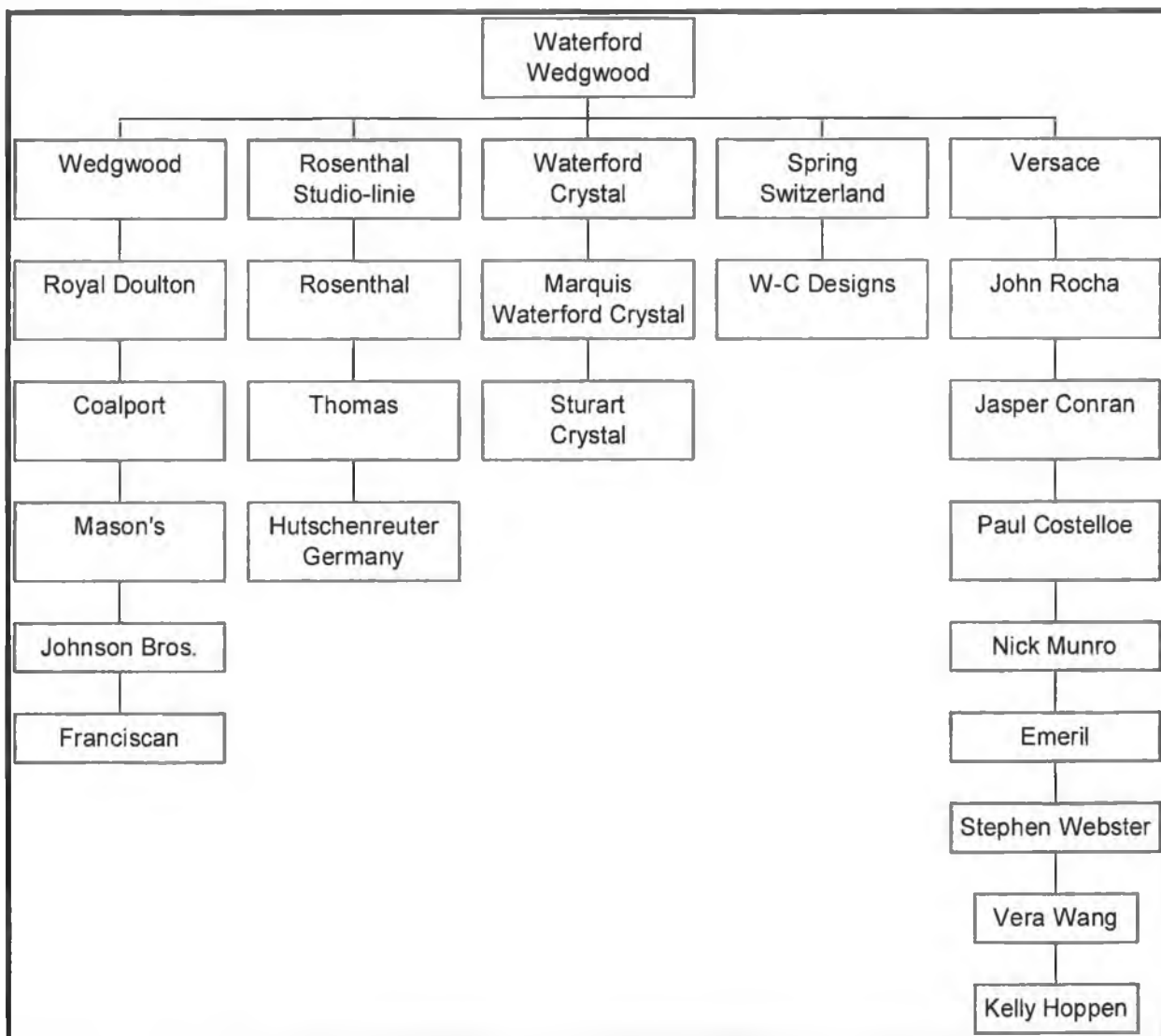


Figure 20 A portfolio of global brands (company source, 2006).

Figure 20 includes the companies and brands that make up the Waterford – Wedgwood portfolio. Waterford Crystal in the late 1980s employed 3,200 people. The workforce was rationalised to 1,600 in the 1990s and to just over 1,000 employees today through a series of industrial relations negotiations. (See figure 21 p153) Many employees had joined the company at a young age as apprentice craftsmen and general operatives. When the restructuring began in earnest in the early 1990s with a call for new skills and qualifications there were over 1,000 employees who had not

completed their Leaving Certificate. They were seriously handicapped in working with the new processes, systems, products and work methods involved.

Waterford Crystal, Employment Levels, January 1987 to March 2006.

	Jan 87	Jun 88	Jun 89	Dec 90	Dec 93	Dec 94	Dec 95	Dec 96	Dec 97	Dec 98	Dec 99	Dec 00	Dec 01	Dec 02	Dec 03	Dec 04	May' 06
Category																	
Blowers	589	422	411	430	238	213	180	140	125	112	104	103	103	101	89	66	54
Cutting	857	662	638	622	342	307	307	298	272	278	255	254	249	247	236	157	117
Factory																	
Ops.	1163	722	746	735	559	612	594	591	676	662	736	763	723	652	648	683	486
Mgt/Staff/																	
Admin	310	224	209	316	291	277	304	320	355	377	409	462	447	472	483	462	354
	2919	2030	2004	2103	1192	1409	1385	1349	1428	1429	1504	1582	1522	1472	1456	1368	1024
Contract	105	187	325	189	105	145	143	181	132	181	208	166	24	203	92	32	50
Total	3024	2217	2329	2292	1297	1554	1528	1530	1560	1610	1712	1748	1546	1675	1548	1400	1061

Figure 21. A series of rationalisations and restructurings 1987-2006. (company source, 2006).

To address the deficit the company launched a series of company wide initiatives offering all categories of employees the opportunity to develop new skills and adapt to the changed work environment. The story of the change and adaptation process for company and employee is the context for this Ph.D. study. It is a study on how a company redeemed the educational deficit of its employees in the most difficult circumstances and through it achieved a new level of competitiveness that enabled it to compete successfully in the global economy.

The study included five research phases, three of them carried out with employees in the company and the other two phases were company related. In this situation it is important to understand the context in which the changes and adaptations occurred. The company and the change process was a microcosm of the transformational change that was taking place at national and global level throughout the 1990-2006 period.

The company was originally founded in 1783 by William Penrose and quickly established an international reputation for its distinctive design and the fine quality of its product range. It closed in 1865 due to the imposition of penal tariffs on exports by the UK Government. In 1947, a Czech entrepreneur Charles Bacik and a group of Irish businessmen reopened it. In the following decades it quickly recaptured its pre-eminent position in the 1950s and 1960s as a leading international brand. It won worldwide acclaim for its craftsmanship, distinctive designs, and quality and customer service.

Waterford Crystal Ltd is a member of the Waterford – Wedgwood Group of companies that includes Wedgwood, the leading maker of fine china in UK, which was founded in 1759. It also includes in its portfolio of brands, Rosenthal, Germany a prestigious maker of fine artistically designed ceramics, Royal Doulton a leading UK maker of ceramics and fine china and Spring Cookware a leading maker of cooking utensils based in Switzerland. Some of the most famous international fashion designers are contracted to design product ranges. This association between famous fashion designers and high quality tabletop product depict a luxury lifestyle that has attracted many of a young fashion conscious generation who have since become loyal customers to the brands.

Waterford exports 87% of its product of which 70% is shipped to the United States. It sources product and collateral from forty companies throughout the six continents. While group products are distributed across international markets, crystal is heavily dependent on the US market and subsequently the performance of the dollar for income and profitability.

Waterford Crystal Division Sales by Market - Basis Turnover

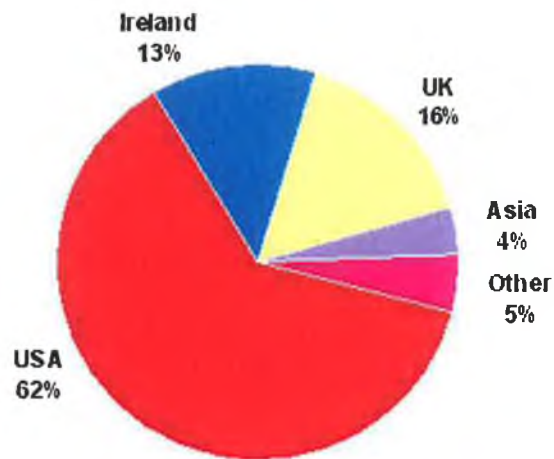


Figure 22. Over dependence on the US market. (company source, 2006).

Waterford Crystal's manufacturing costs are predominantly in euro and its income is mainly in dollars. Every percentage change in the value of the dollar equates to a €1m gain or loss on the bottom line. To protect its profitability, the company engages in a hedging process, which protects revenue earnings from the worst effects of a down turn in dollar value. The Waterford – Wedgwood overall group breakdown in sales records 30% of its sales to the US and 70% to the rest of the world which represents a far greater spread of markets world wide.

A crisis and an opportunity

In the late 1980s the company faced a crisis in performance. A combination of external and internal negative factors conspired to undermine the stability and growth of the company. These included:

- An expansion of the workforce to 3,100 by the late 1980s.
- Employment of 1,200 craft employees who were the most highly paid.
- A relatively sudden weakening of the dollar to \$1.50 per IR£1.
- The negotiation of an extremely generous 3- year employee relations agreement (1985-1987). While radical in terms of social vision it included an inflationary 21% wage increase over the three years which was in excess of the average national wage increase and the inflation rate of the time.
- Competitors had restructured, employing leading edge technologies, making their production processes more efficient, their products more price competitive and their customer service more responsive.
- Waterford price points at the time provided little scope for increases to offset increasing costs.
- A worldwide recession caused a drop in demand, and a contracting of the overall crystal gift market, which was a mature market.

Restructuring to compete.

This combination of negative factors created a crisis in 1987. In response the company introduced a major rationalisation programme involving a voluntary parting package including early retirements and redundancies. Approximately 1,500 employees voluntarily departed the company between 1987 and 1993.

The downsizing/rightsizing programme created many problems. The most serious issue was the loss of a large bank of craft skill and experience in one large rationalisation programme in 1987/1988. Many of the most senior and skilled craftsmen retired taking with them a library of tacit knowledge, fine production techniques and work methods which had never been captured and recorded. Generations of craft skills were lost which undermined the recovery plan for at least five very difficult years to 1993. It took a period of intense training and development employing the remaining highly skilled craftsmen to rebuild the skill base. The table below outlines the change in the job profiles from 1987 to 2006 as the business moved from craft to techno- craft operational base.

A period of transformation

In 1990 the consistent pressure to reduce costs and develop an efficient operational base imploded in a 14-week strike, which had a traumatic effect on employee relations. A new management and union structure was negotiated with management regaining control of the business and the union winning a number of important long term benefits for employees relating to their development and performance.

In 1991 a Tony O'Reilly led consortium invested £100m in capital to help modernise the manufacturing process, which was aimed at recovering its competitive edge. Many changes were agreed that facilitated the drive for competitiveness. From 1989 to 1994, five major employee relations' agreements were negotiated between management and union. The result was a reduction in the cost base of £35m, involving restructured operations, new work practices, policies and procedures and

the introduction of outsourcing. The workforce was rationalised from 3024 in 1987 to a planned 1061 in May 2006 (see figure 21p153).

The involvement of new shareholders led to the introduction of a new competitiveness strategy in the 1990s, which had major implications for the skills, and qualifications of all categories of employees. The board decided that to compete globally in the future it had to introduce high technology to support the best craft skills (see Figure 23 p159). It had to outsource product that was unable to deliver an acceptable margin through the home sourced operation. This new strategy reduced costs, improved profit margins and broadened the capacity of manufacturing to produce a more sophisticated range of product lines including new concepts.

The operational changes demanded a complete review of the skill base and it led to the introduction of a range of new education and training programmes for all employees at a level never before considered by the company. The executive management of the time announced that the future success of the company depended on the ability and commitment of employees to acquire a new knowledge, technology based set of qualifications. They backed that statement up with significant resources to enable it to happen. The employees responded positively and it led to a mass return to education and training as they eagerly sought to redeem their educational deficit and protect their employment status throughout the following decade.

Figure 23 (p159) shows in graphic form the most fundamental change in manufacturing strategy in the company's history.

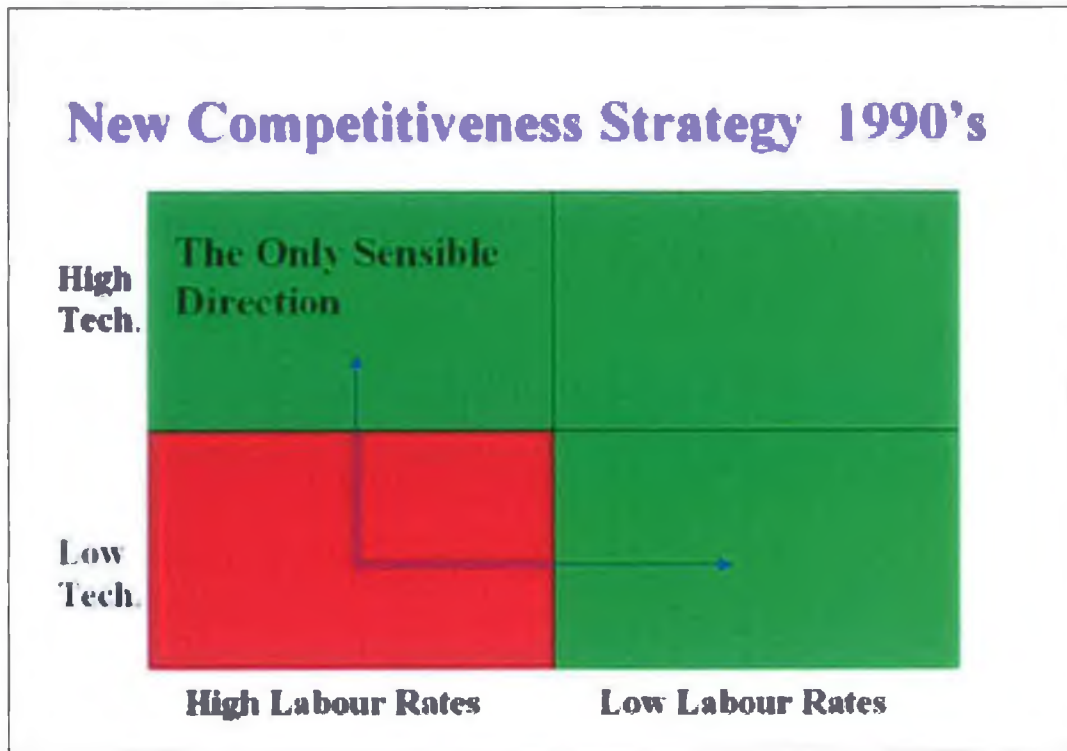


Figure 23. A high technology, high wage strategy. (Company source, 2006).

Eight major change strategies, 1990-2006.

The changes that were implemented involved the radical restructuring of the company from top to bottom. Every job and process was reengineered which involved the design of new specifications requiring new skills and new knowledge-based qualifications. The eight main changes were:

1. A major long-term investment was made in the company by a consortium led by Mr AJF O'Reilly following which a new executive management team was appointed who set out to restructure the business and build a competitive platform for the business to succeed over the longer term.

2. The organisation was rationalised and restructured several times. Significant capital investment in new technology, systems, processes and plant was made. The nature and content of work changed from craft to a techno-craft/knowledge base. New technologies including new machine and information software packages were introduced to enhance the craft, productivity, designs and quality leading to a more competitive and responsive business.
3. The business ethos was changed from production driven to marketing led and the concept of multiple competing sources was introduced, outsourcing product from twelve companies on the European mainland.
4. Industrial relations changed from adversarial to a more collaborative, partnership approach which incorporated a new comprehensive communications strategy, was implemented.
5. A new and inclusive learning organisation was developed that re-educated and up-skilled the entire workforce, making the change process possible.
6. A new marketing strategy involved the introduction of a creative new product development programme aimed at widening the appeal of the brand attracting new and younger consumers. The strategy involves contracting famous fashion designers to design more contemporary product ranges and concepts to attract new consumers to the brand and a range of new products developments to excite and delight the customer world-wide.

- Three major business plans were developed of which the first two have been successfully implemented and the third is currently a work in progress. The first two completed were Turnround Plan 1991-1995 and Waterford 250 (£250m sales) 1996-2000. The third business plan is “Vision 500” (€500m sales) 2002-2007. Supporting the second and third business plans was the establishment of a new logistics function to manage a global supply chain capable of purchasing, producing and selling a range of products worldwide.
7. New radical steps had to be taken to address the new challenges post September 11, 2001 when the luxury goods business and the retail sector in the US went into a deep period of recession. A range of cost improvement strategies were implemented throughout 2004-2006 which is ongoing. The main areas targeted for improvement were cost overheads, quality and customer service improvements.

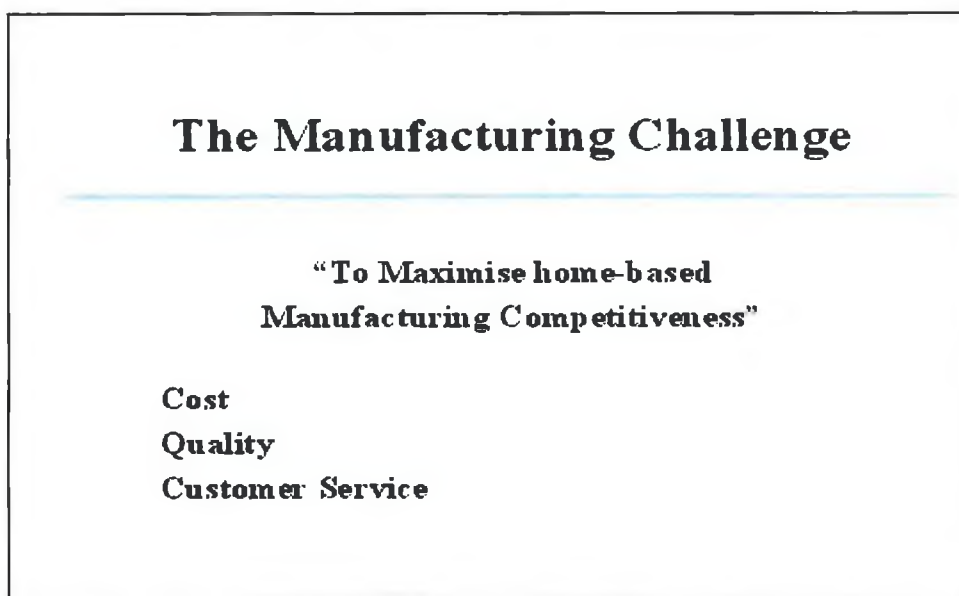


Figure 24. Three key performance indicators. (company source, 2006).

Figure 24 above highlight the three key performance indicators underpinning the drive for competitiveness throughout the 1990-2006 period. The eight major changes were implemented, several in parallel. They completely transformed the nature and structure of the business, job specifications and responsibilities for employees. Results turned round from losses of IR£20M for four consecutive (1987-1990) to a profit of IR£35M in 1994. Subsequent results posted improved profit levels year on year until 2001. In the aftermath of September 11 the US retail sector went to a recession which is continuing to impact negatively on crystal sales.

A new operating context –1990-2006.

The following is a more detailed explanation of the eight most relevant changes that shaped the new operating context in which the skills base of the entire workforce had to be upgraded.

New Investment brings absolute change:

In 1990, a group of investors led by current chairman Dr Tony O'Reilly invested £100M in Waterford-Wedgwood. These investors indicated their long-term interest in and commitment to the company from the start. This change was more fundamental than just a cash injection. With it came new ideas and a new direction. In short, the world was turned on its head; suddenly, all things were possible. Yesterday's gospel was today's heresy and vice versa. New and sometimes difficult approaches and initiatives were not only encouraged; they were demanded. A new management team was appointed to restructure the business from top to bottom and return it to profit within a short time.

An in-depth restructuring of business processes was carried out. A new business process re-engineering programme was aimed at modernising and improving performance. A change from a bureaucratic, stove- piped to a flat and streamlined organisation was developed to service an integrated supply chain.

Thirty-seven cross-functional project teams established in the mid 1990s examined and addressed the most urgent business issues. The business today is unrecognisable from that which existed pre 1990. Cross-functional projects facilitated dialogue between employees from different functions and plants.

The company was restructured; employees were retrained while improved results were turned in year on year between 1993 and 2001. The 9/11 tragedy of 2001, outbreak of SARS and the Iraq war damaged consumer confidence and negatively impacted on the luxury gift business in general in particular, in the US. The crystal business overall suffered badly due to these external political and environmental developments outside of the control of the company.

Waterford as the leading manufacturer of fine crystal in the world found itself in the eye of the storm with subsequent negative results. The value of the dollar dropped subsequently causing more problems all of which were beyond the capacity of the business to control. The company is currently striving to rationalise further and move into a recovery mode. It is expected to return to profit in 2007. The past 16 years has been an extraordinary period for business competitiveness and employee development at Waterford.

A New Business Operating Ethos:

Waterford had for decades been the quintessential production driven company. The new more competitive environment of the 1990s dictated that the needs of the customers be given priority status. In hindsight, it was remarkable how complacent the company had become to servicing customer needs. Manufacturing produced what best suited its facilities and then sold it on to the customer. In the mid 1980s Waterford was making a virtue of their inflexible manufacturing facility. An advertisement at the time ran on the following lines *“Waterford is an outstanding product but difficult to acquire- you may have to wait six months, but it is well worthwhile waiting for”*. The advertisement was designed to create an aura around scarcity. The product was so special and the customer so privileged in the transactional process.

Following the trauma of year -on - year losses 1988-1991 and the rationalisations the need to take radical action to arrest the decline was very apparent. Changing to a market led operation required a complete turn round in behaviour, operating principles, customer service priorities, and production planning and scheduling, product development and supply chain enhancement. The cultural and organisational change required a massive education and training programme.

Changing from a craft to a techno-craft based operation.

Production processes that had been dependent on craft skills and knowledge were re-engineered introducing new technologies, methods, systems and techniques. Building more competitive, flexible and adaptable manufacturing

processes became an all-consuming goal. Over £60m of capital was invested between 1995 and 2005 in re-engineering plant, processes and equipment. Joint research projects with leading European companies designed and produced original and leading edge glass manufacturing technologies and processes.

Multiple Competing Sources:

A business strategy involving multiple competing sources was introduced in 1992 with the objective of improving competitiveness. The outsourcing of product involved an internal “make or buy” decision-making process. Product lines unsuited to the company’s processes were outsourced. New products were subjected to a rigorous make it home or buy it from an approved external supplier decision.

To win maximum business for the home based plants a ‘Task Group on Competitiveness’ involving members of management and unions was set up to focus on internal efficiencies. Through it the workforce engaged in making cost improvements in every area of the business and employees co-operated in striving to protect their own jobs.

In 1991, the company sourced its entire finished product from Waterford manufacturing in Ireland. Today, crystal products alone are sourced from 20 companies in 12 countries in Europe representing 20% of all crystal manufacturing. Brand extensions such as linen, Christmas ornaments, jewellery, china, flatware and writing instruments are additional outsourcing activity. The overall product range is sourced from forty locations in three continents, Europe, Asia and America and marketed and sold under the Waterford brand worldwide.

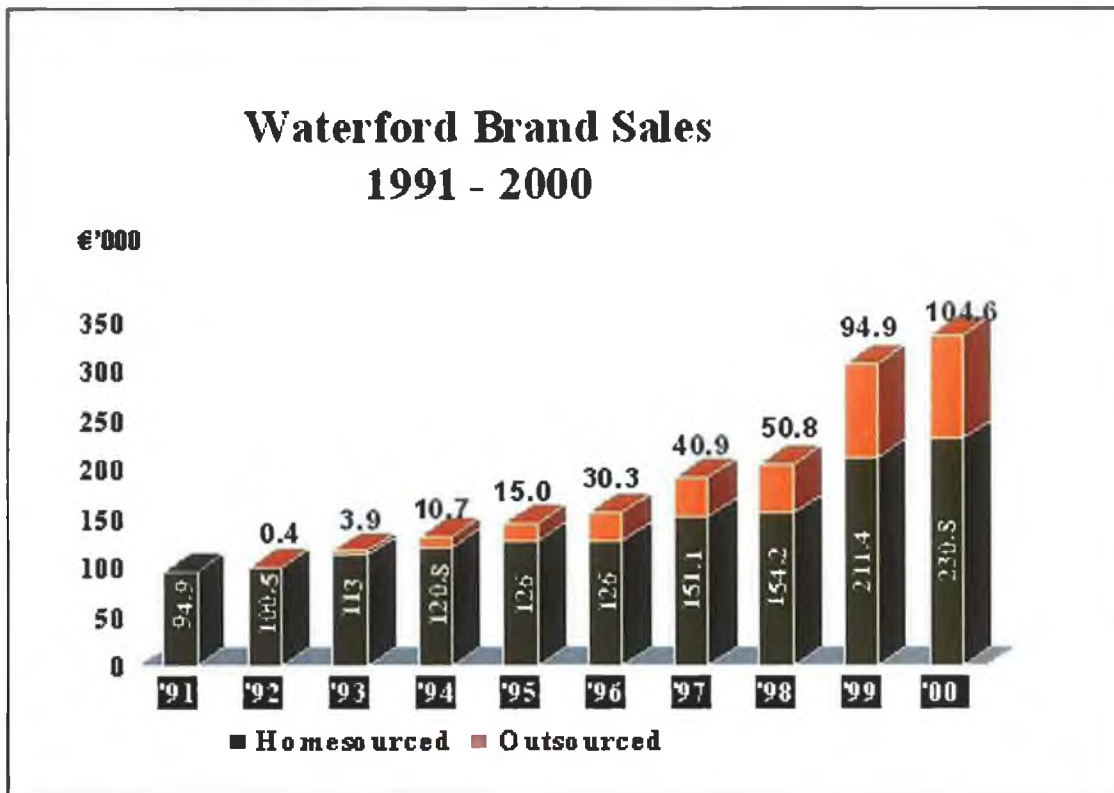


Figure 25 Outsourcing – a benefit or threat ? . (company source, 2006).

Figure 25, outlines the growth in outsourcing from 1991 to 2000. Outsourcing of product from the European mainland (factories in Germany, Italy, Spain, France, Sweden, Czech Republic, Austria and Slovenia were the main suppliers) contributed to the competitiveness of the company. It delivered more competitive products to the brand. Many employees with low qualifications and obsolete craft skills regarded outsourcing as a threat. The unilateral power of the union was diminished once alternative sources of supply became available. The issue of damage to the brand caused ongoing concern among many sections of the company.

Industrial Relations- From adversarial to collaborative:

The appointment of a new executive management team in the early 1990s along with the massive new investment marked the beginning of a more commercial and accountable approach to every aspect of business performance. Up to then

management had a great reputation for paternalism and jobs in the company were prized by many people in the community. New business objectives were set including building a leaner and more competitive organisation which would compete with the best in the world on productivity, quality, cost, and customer service. The first major confrontation was a fourteen week strike in 1990, the settlement of which led to a much tougher approach in managing costs.

The strike settlement agreement included short time, further redundancies with limited packages on offer and a range of new work practices that were more cost effective and profitable. To create a balance the company introduced several employee development programmes. A new profit share scheme indicated that improved performance would bring benefits for everyone.

The vast majority of workers were crying out for strong leadership to turn the company around. The workforce responded with great commitment to a more open and direct style of management. Through communications, education and personal experience they came to quickly appreciate the position of the company, the difficult choices to be made and how the proposed changes made sense. Some of the practices in place prior to the strike in 1990 had been unsustainable in the long run.

Ten major industrial relations agreements were negotiated between 1987-2005 resulting in a total transformation of the business. See (Figure 26 below) €100m was taken out of the cost base between 1990-2006. The restructuring included a seven year pay freeze, a reduction in wages of from 15% to 25% (25% from the most highly paid craftsmen), short time working, and the implementation of a new outsourcing strategy

in the early 1990s. They included the introduction of new technologies, systems and processes, voluntary early retirements, redundancies and redeployments right up to May 2006.

Company / Union (ATGWU) Agreements 1987-2006.

1987 - Rationalisation Agreement.

1989- Company/ATGWU Agreement on Commitment and Profit Share

1990- Comprehensive Agreement for Profit Improvement (Strike Settlement Agreement)

1992 - Terms & Conditions of Employment / Union Structure / Procedures Agreement.

1993 - Cost Improvement / Investment / Competitiveness Agreement.

1997- Woodstown Accord –Future Introduction of New Technology

2001-Plan for Renewal & Future Growth

Figure 26. Ten major industrial relations agreements. (company source, 2006)

Through the many changes in strategy, structure and operating practice Waterford has become a more agile, lean, flexible and responsive organisation. The most recent agreements of 2003 reduced the cost base by €27m. The most recent 2005 agreement included the closure of Dungarvan plant with a total loss of 485 employees (Dungarvan 400 employees+ Kilbarry 85) achieved a further €25 million from the cost base.

New Marketing Strategy:

Waterford was for decades the dominant brand for fine crystal production in the world. It is a tribute to the pioneers that Waterford became the epitome of traditional

elegance creating an image for excellence for Irish manufacturing at a time when there was little Irish presence on world markets. In the 1990s it was perceived that loyal customers were ageing gracefully and younger generations were not as enthusiastic and supportive. At the same time, prices were being forced up by production cost increases and currency exchange differences. To address this, the company created a new associate brand in 1991 called “Marquis”. The new designs were more contemporary in design, a lighter feel and launched at attractive price points.

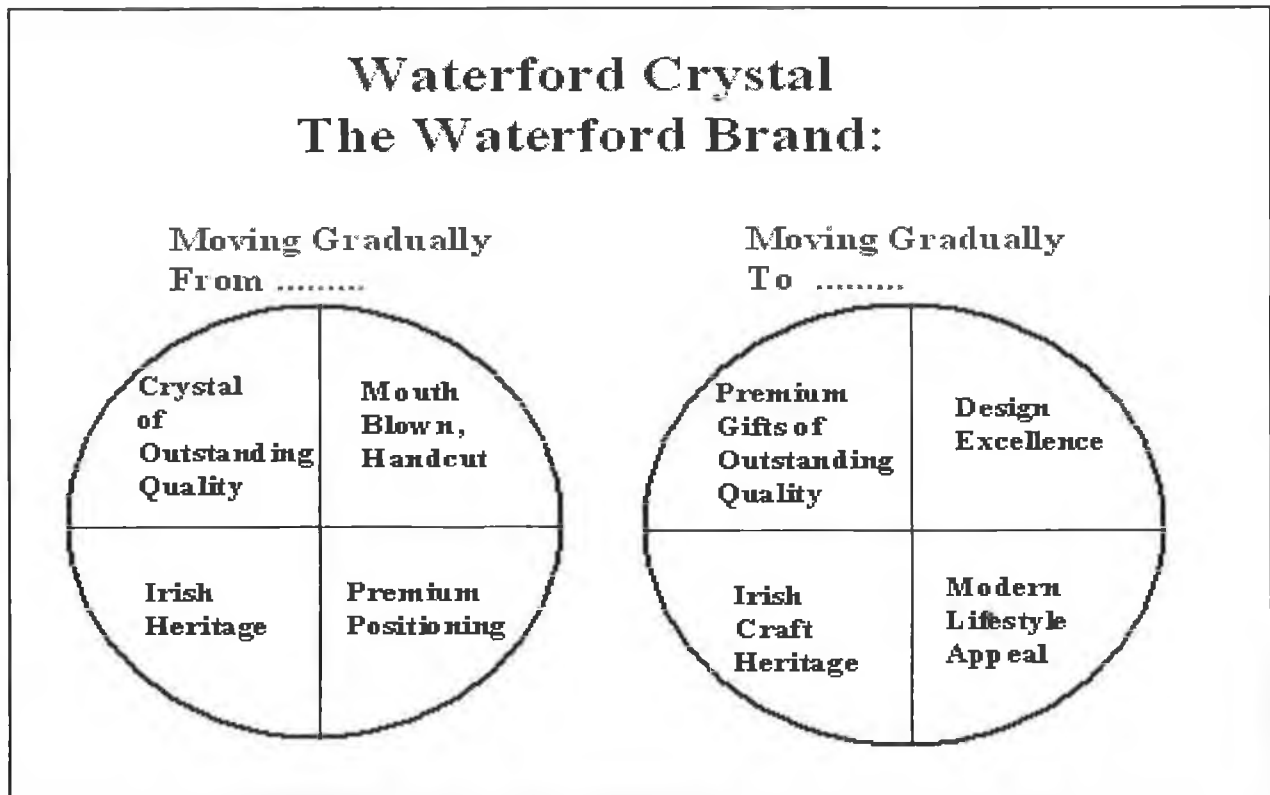


Figure 27. a new marketing proposition. (company source, 2006)

The launch of new brands and link ups with famous fashion designers was part of a gradual repositioning of the brand as outlined in (Figure 27) above.

The success of the new brand was followed by an innovative link up with Ireland's premier fashion designer John Rocha in 1997. Rocha by Waterford was outstandingly successful in attracting new younger customers, initially in Ireland and subsequently, in the UK, Canada and to a lesser degree in the US. The John Rocha range moved Waterford's products into a new market segment. His range of contemporary fashion designs represented an alternative option to the more traditional classic Waterford design.

Most importantly, the marketing and promotional material emphasised the utilitarian benefits rather than decorative design appeal. The younger and more design conscious consumer responded positively and in great numbers. They almost created a problem for the company placing heavy demands on the production process. In 2002 an extensive market research nominated Waterford as the leading brand for quality in the US, which was a truly outstanding reflection of its enduring appeal and the re-positioning strategy.

As a further drive for expansion and marketing diversification it was decided in 1997 to extend the brand out into other carefully selected quality products. See (Figure 28 below). This marketing strategy proved highly successful and a range of linen, flatware, writing instruments, jewellery, and china and holiday heirlooms were launched with outstanding success. In research carried out in the luxury goods trade Waterford represents a brand name for quality, distinctive design and uniqueness. It is not recognised as a place, a city in Ireland with the majority of customers. Apart from the Irish American community it is a revered brand name like IBM, Calvin Klein, Louis Vuitton, Gucci and Versace.



Figure 28. A selection of the new brand extensions. (company source, 2006).

New	Product	Development
<p>The development of new product became a priority marketing and manufacturing strategy from 1991 onwards to attract new customers to the brand. New product concepts and designs were developed around themes and stories on Irish heritage. Other concepts involved collectibles, colour, evolution range, contemporary living and other lifestyle choices. New product launches excited the market. They quickly became the lifeblood of the business as 200 to 250 were introduced each year at the Spring and Autumn Shows in New York, and Trade Fairs in Frankfurt, Birmingham and Dublin. Last year, products launched within the previous two years accounted for over 20% of sales. New product helped retain old customers and attract new customers to the brand. New concepts, product streams and designs won many compliments from the trade. The flexibility of the supply chain delivered a best in class customer service performance.</p>		

A new interest in lighting-ware, colour product, celebration and heritage related product has given the brand a new vigour and there are many initiatives being undertaken to capitalise on the new products and the new competitive base currently.

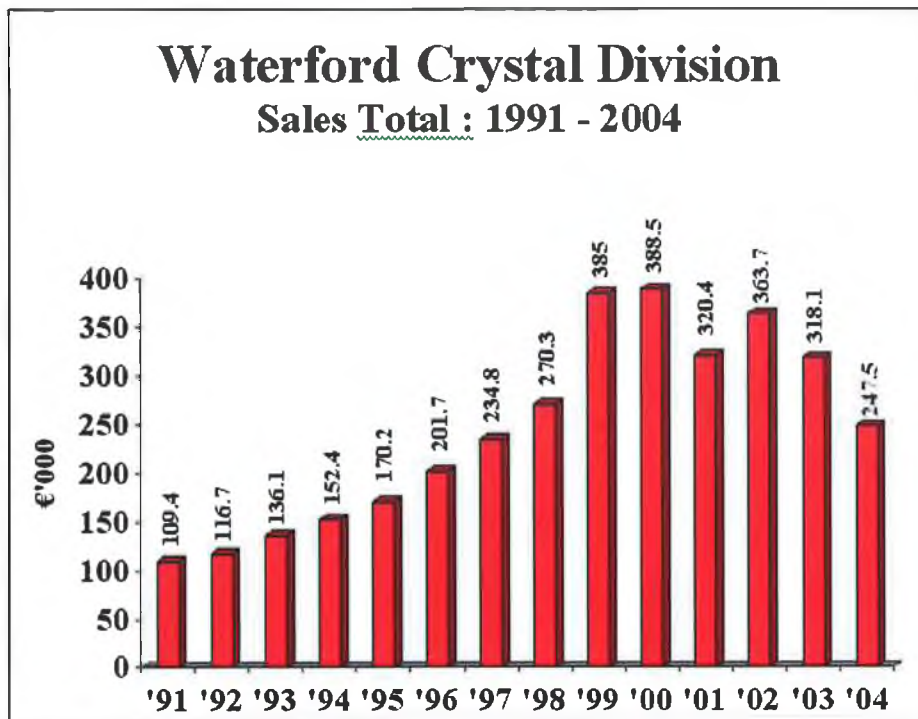


Figure 29. Outstanding results, 1991-2003. (company source, 2006).

Both 1999 and 2000, the millennium years produced exceptional results. See (Figure 29). The millennium toasting flutes signifying love, happiness, health, prosperity and peace was the most innovative and successful of marketing and sale of new product in the history of the company and set the standard for a hugely successful millennium.

New Business Growth Strategies:

Waterford operated in a highly competitive business environment at the top end of the crystal premium gift market. It was competing with other crystal products but also with all other premium gift products in the luxury brand category. Waterford needed

to compete in the entire premium gift market for the discretionary spend available.

The business environment in which Waterford operated included :

- Gift giving business
- Branded luxury products
- A diverse product range
- Fast changing market
- High rate product replacement
- Multi-sourcing – globally competitive manufacturing
- Manufacturing in a high labour cost country.
- Cost base inflation exceeds pricing movements in key markets.

The success of the Turnround Plan in the early 1990s encouraged management to embark on a new growth strategy. The second major business plan was aimed at doubling turnover from £125m to £250m sales in 1996- 2000 period and it was achieved. A new plan for growth was produced and launched in 2002 called “Vision 500”. This involved a sales target of €500m for the period 2002 to 2007.

The targets in this plan have run into serious difficulty. Many external factors such as 9-11, the Iraq War, SARS, the drop in the value of the dollar have conspired to change the context, operating principles and targets on which the plan was based. Management responded promptly to the growing crisis by initiating many new cost improvements. When the dollar strengthens, the business will be better positioned to deliver an acceptable profit. It is still possible that the targets contained in “Vision

500” will be achieved in an extended timeframe by extending the original end date of 2007 out to 2009.

To focus employees on critical success factors in the mid 1990s the CEO introduced four commandments, which heavily influenced all subsequent decisions on competitiveness.

They were as follows:

- (1) We are never going to sell products at a loss again.
- (2) We are never going to fall behind on technology again.
- (3) We are never going to compromise on quality
- (4) We are always going to ensure that our employees are informed

An EU Project ‘New Opportunities for Women’ Programme’ completed in 1996/1997 recommended a fifth commandment (5) That education and training is not just for “NOW” but forever. On their recommendation the CEO agreed to add the fifth commandment.

The crisis, recovery period Turnround Plan of 1990 to 1994, business growth plan “Waterford 250 of 1996 to 2000 and the current business plan “Vision 500” from 2002 to 2007 were the major milestones in the drive for competitiveness and profitability. The overall result is best captured in (Figure 30 below), which highlights the transformation in the competitive base of the company from 1986 to 2004.

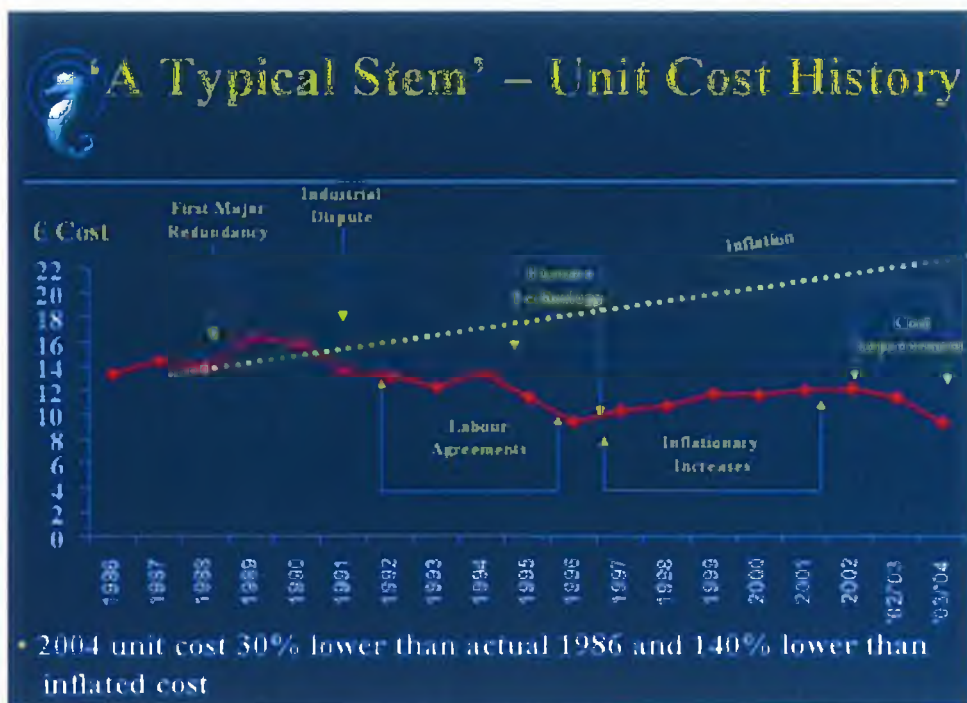


Figure 30. A competitive transformation-1986-2004. (company source, 2006).

A new logistics function manages a global business

A logistics function was established in 1997 to manage a truly global business. Supply chain management skills became a critical business competency as Waterford purchased, produced, sourced and sold product and collateral worldwide. The speed, agility and adaptability of the global and internal supply chains became a key critical success factor in securing the future of the business. The company has 21,532 individual products (single keeping units, SKUs), 1,400 Vendors (400 core vendors) and purchase product and collateral from 55 countries.

The logistics function includes, forecasting, planning, purchasing, and customer service and distribution teams which were previously fragmented. They were isolated in different locations throughout the company and were under resourced.

In the strategic decision to outsource production and develop new brand extensions the development of an integrated supply chain management function became a seriously competitive issue. One hundred and twenty five employees are currently employed in the logistics function all dealing with myriad of issues in a global business environment. Currency transactions, time zones, languages and cultures have to be managed and many of the skills are new and developing as the globalisation process deepens. New staff members with specialist supply chain skills were recruited to assist with local staff who had upgraded their skills and qualifications. Figure 31, shows a 'One Waterford World 'of commercial activity which required employees to develop new skills and competencies.



Figure 31. 'A global supply chain'. (company source, 2006).

Communications facilitates participation.

A priority objective set by executive management was the development of an organisation wide understanding of key business issues among the entire workforce.

There was a great need to engage fully the commitment and interest of every individual employee in the overall transformation process to achieve the most complete result.

A new communications strategy was developed in the early 1990s. The new policy statement, 'To build an informed and questioning workforce' set the standard and commitment to share information with every employee. A fully informed workforce would achieve more quickly and thoroughly the business objectives. Fully informed employees would represent a decisive resource and the cornerstone of the change process. They would be more able to act on their own initiative whether developing their own skills, solving a problem at source, taking the lead in initiating change or just motivating others to achieve a higher performance.

A new communications infrastructure was established. It included meetings between the CEO, his executive team and the workforce twice yearly at which a presentation by the executive was followed by an open question and answer session. A company newsletter "Crystal Clear" was published twice yearly at Christmas and summer containing a mix of important business messages mixed with achievements, promotions, social and personal items of interest and outstanding developments were included. A monthly "Business Update" sheet including an update on progress on the key success factors was published. Electronic notice boards were erected in the canteens and in central locations within the factories.

Working teams were trained in communications and presentation techniques to improve the flow and understanding of critical information. An "Inform" team

briefing system was introduced and the team -briefers were trained to deliver the briefs and listen and capture the concerns of employees and ensure that they were followed up and An 'Intranet system' was designed which provided a mass of relevant information to all PC users.

A local area network facilitated the flow of information throughout the information technology system. The LAN and intranet supported shift-working teams who worked outside the regular 8a.m. to 5p.m shifts and was fully supported by the human resource function. Shift teams relied entirely on their team leader and on the electronic and paper based communications initiatives to supply them with relevant information.

Training on team effectiveness, communications, team briefing, team leading, report writing, planning, problem-solving, project management, running meetings, presentations, listening skills, giving and receiving feedback, positive criticism and performance review skills all helped to sharpen the communications network and to get the maximum return on investment (time and money) in improved communications. The union network was the other essential communications network which kept the membership fully informed of developments and engaged them in decision-making on a regular basis throughout the change process.

Facilitating change through education and training

Creating A Learning Organisation:

Executive management had communicated at company-wide meetings that the future viability of the company depended on the willingness and capacity of the workforce to embrace change. Employees were urged to develop a new portfolio of skills and knowledge. Meanwhile a concentrated effort was made to establish a learning organisation in which employees could participate in a wide variety of learning opportunities. In response to the impending changes the industrial engineering department was employed to re-engineer new work practices, shift working, new incentive schemes and much greater flexibilities into all functions but in particular into the manufacturing processes.

The need for dual, multi-skilling, problem solving at source and new quality and management information systems injected urgency into the need to engage in education and training. Employees who chose to remain in the company had little choice but to return to education and acquire new sets of qualifications. The company's overall architecture and its operating principles were changing dramatically.

Executive management decided to invest heavily in creating the Learning Organisation. The new learning dynamic absorbed the energies of employees in on and off the job learning. The new learners led and shaped the change process. They transformed the competitive base with the thousands of little improvements. The new learning revolution enabled the redeployment of 800 employees into new jobs requiring new competencies.

New technology based jobs challenged highly skilled craftsmen with low formal education to return to college and develop new knowledge-based competencies. New job descriptions involved new tasks, processes, systems and responsibilities. New statutory obligations added further to the need for continuous learning. The ethos, culture, structure, character, job content and skill sets on which the success of the company had previously been achieved were completely transformed throughout the 1990s. The changes demanded new attitudes, skills and knowledge from every employee.

The main changes are summarized as follows:

- Change from production driven to marketing led.
- Move from manual /craft to techno –craft / knowledge based work.
- Extend the influence of the brand from crystal products only to a portfolio of luxury gift products including brand extensions such as china, writing instruments, linen, flatware, Christmas ornaments and jewellery.
- Increase competitive capacity from a single source, Waterford Manufacturing to multi source supply base of 40 companies in Europe, Asia and US.
- Graduate from survival to consolidation to growth strategy.
- Move from an institutionalised inward looking workforce to developing a global perspective on business and market issues.
- Move from intermittent to rapid to continuous and challenging change.
- Change from a functional stove piped organisation to a cross – functional, flat organisation structure.
- Negotiate from an adversarial to a progressive more collaborative industrial relations climate.

- Move from single and specialist skills workforce to multi-skilled/ flexible and interchangeable employees.
- Progress from management responsibility to a shared responsibility for results.

Intellectual Capital

In changing to knowledge, technology based company it was the intellectual, technical and motivational capacity of the workforce that provided the competitive advantage. Employees implemented the business strategies! The organisation could not have been restructured without having developed the skills and knowledge needed to achieve it.

In Waterford the contribution of every employee mattered. Employees with low skills and low formal education qualifications needed a lot of help to liberate their under-utilised talents. They were helped to unable to imagine and appreciate the fullness of their potential through professional assessments. The building of their confidence and self-esteem was a first step. The mobilisation of government, education and training provider and employer resources had to be coordinated to provide the appropriate framework.

The development of employees at Waterford involved key steps: the development of a strategy, a structure, a plan and a delivery/ evaluation mechanism which were formalised over the years by the education and training department. Figure 32, below outlines the education, training management cycle developed by the training team to meet the needs of every category of employee during a difficult change period. The educationally disadvantaged employee received priority attention in this process.

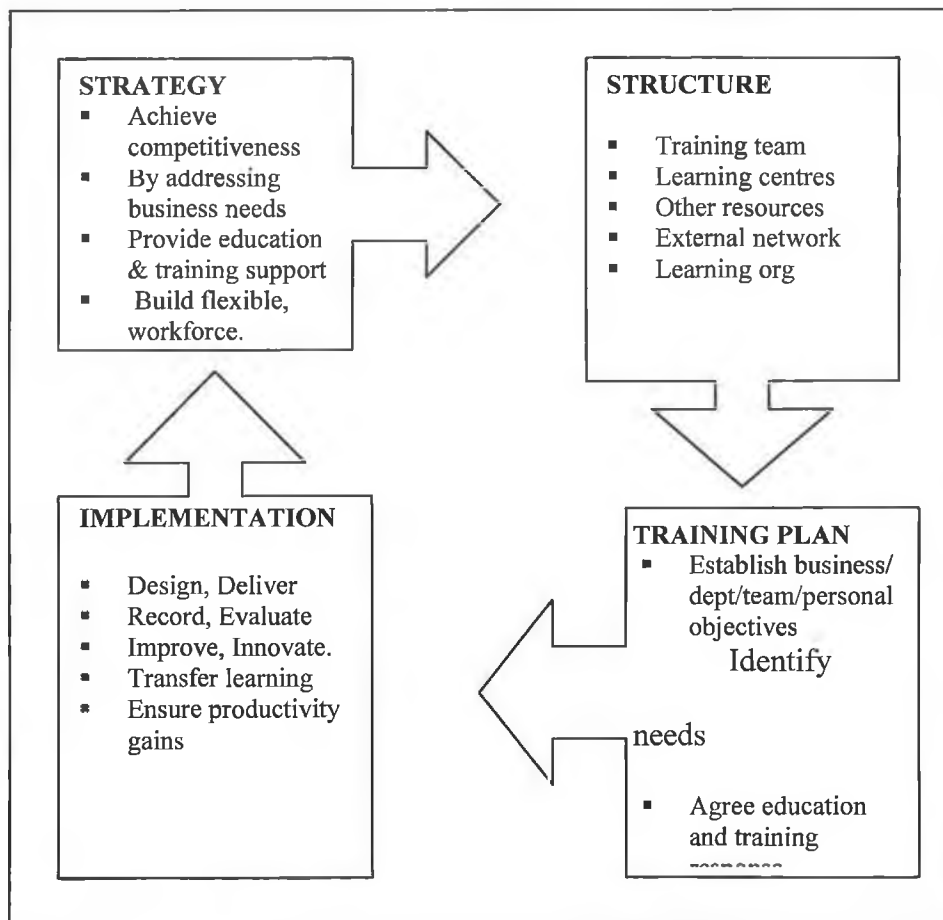


Figure 32. Education and training cycle at Waterford Crystal Ltd .

A professional and systematic team-based approach was adopted to manage the education and training cycle in Waterford Crystal. The education and training needs were identified against the business plan and the annual objectives for company, function and department. A plan was developed and once passed by executive management the resources were provided and the plan implemented.

Quarterly progress reports were presented to executive management ensuring adherence to delivering on the targets in the plan. There was always scope to adapt to new developments in the business as they occurred. This was a regular feature

throughout the year. No matter how detailed the assessment of needs it is impossible to include the unexpected but to be always ready to anticipate it and deal with it when it comes.

The training team was developed into a highly flexible, skilled and adaptable unit. Quarterly updates kept all the senior managers abreast of the changes to the original plan. At the year-end a full review was undertaken prior to carrying out the assessment for the following year. The training team held fortnightly meetings to review and update their own strategy, structure and plan. They reviewed delivery, recording, evaluation and improvement of education and training programmes and training performance.

Developing a strategy

The new CEO announced in 1990 that the future viability of the business would depend to a large extent on the willingness of the workforce to be re-educated and retrained and embrace the difficult changes coming on stream. He emphasized that the 'old ways were gone forever'. A job for life was no longer guaranteed. Remaining in the same job for an extended period could not be guaranteed. Employees would have to master new technologies, systems, processes and knowledge concepts in the future and develop new knowledge based skills to do it. The concept of employability, of acquiring a broad portfolio of skills was promoted company-wide. The employee was challenged to take personal responsibility for this development. The company committed to providing the resources to support it.

In 1990 a Training and Communications Department was established. A new education and training strategy was launched and aimed at developing a business literate, competent, high performing workforce. The essence of the strategy was expressed in two policy statements that helped shape employee development and won the support of all sections of the enterprise over the following decade.

Two new strategy statements:

Communications – ‘To establish an informed and questioning workforce’

Education & Training – ‘To build capability and commitment company- wide’.

The two strategies were informed by five guiding principles:

(1) Respect for employees and their potential: Access to a variety of development opportunities raised the overall performance of everyone in the company. Executive management removed many barriers and provided new resources. Special EU Programmes were targeted at disadvantaged groups and learning outcomes were mainstreamed within the company. The internal training resource reached in to all corners of the company and every employee was included.

(2) Access to professional assessment educational guidance: Many employees were unsure as to what development they should pursue, where to go to get advice and what strengths and weaknesses they had in regards academic and technical development. In cooperation with the Institute of Technology access to the Regional Education Guidance Service Association (REGSA) was provided. Both the training team and REGSA provided professional advice and support on employee development and career path planning on an ongoing basis.

(3) Establishment of a psychological contract: This unwritten contract involved an understanding between management and employees on education and training of employees for cooperation on change. The company would provide the direction, resources, encouragement, training programmes, funding and recognition in exchange for the acceptance of the necessary changes to make the business competitive. To underpin this reciprocal arrangement a new profit share scheme involved sharing ten percent of the profits equally between all employees on an annual basis. Senior management and general operative received the same profit share sum which provided a powerful incentive to all categories of employees to contribute positively to the business. Special share save schemes that had been set up in the 1985-1987 agreement were further developed throughout the 1990s. Over 60% of employees held on to their shareholdings once the schemes matured establishing a strong interest in and sense of shared responsibility for results.

(4) Build up in-house expertise: A decision was made to build up in-house training resources. Training instructors, information technology champions, first aiders, tutors, mentors and team leaders were trained and they acted as change agents and learning facilitators across all functions. Training instructors were assigned to shadow consultants on all new developments including new equipment, systems, process improvements and research projects.

The new knowledge was captured first hand and held permanently in the company for future training programmes. Employees at all levels were involved in cross function project teams. Employees who had returned to college and gained

qualifications were included in the development and implementation of new technologies, systems and developments enabling them to transfer the learning directly into improving productivity and quality.

(5) Promotion of an integrated learning culture: Formal and informal learning programmes, internal and external resources and classroom and action learning in the workplace were used to facilitate the change process. Involvement in new work experiences, problem solving and project participation provided many opportunities for advancement. A key objective was to develop an organisation of independent learners who had the capacity to access continuing lifelong learning opportunities. Encouraging the family to support those with low skills and qualifications was an integral part of the integration process. Many employees had children in third level education. A sharp consciousness was created around the value of national qualifications, traineeships, apprenticeships, third level certificates, diplomas and degrees. The interest was fostered by the company to end family and generational dependency on the company for employment and to encourage employees to return to education for future employment. New education based company schemes were designed to encourage employees and family members to achieve education qualifications together.

These included:

- Computer purchase interest free loans
- Third level college interest free loans
- Third level scholarships
- Part-time education scheme
- Free computer training for family members

- 'Crystal Clear' which was taken home and carried business information of interest to employee and family

Incentives were provided for employees in the form of:

- Internal promotional opportunities
- Voluntary transfer opportunities
- Voluntary redeployments
- Job enlargement and enrichment initiatives
- Wage/ salary increases on the attainment of qualifications and improved skills
- Secondment to special project work
- Participation in problem solving teams
- Involvement in research and development
- Customisation of new technologies and a host of other inclusive learning experience were provided

An appropriate structure.

The need was there to engage the maximum number of employees in education to deal with the changes in the turn-round plan. To achieve this it was essential to develop a learning organisation in which all employees could at least access the 'next step' in their development path. They were encouraged to upgrade their skills and knowledge in line with the needs of the business. In 1991 a training budget was provided that by the late 1990s had increased from 2% to 6% of payroll, which was treble the national average. The budget has since 2001 been cut back to one percent of payroll as the difficulties facing the company impacted negatively on all spending.

Prior to 1990 there was little training opportunity available other than through in-company craft training schools. Their relevance had diminished in the late 1980s as apprentice numbers reduced. A dramatic initiative was needed to re-establish interest in education and training and create a new learning culture. Six significant initiatives were launched between 1990 and 1992 that provided a strong overall incentive to for engage in personal development.

These were:

- A training & communications manager and five full time training professionals were appointed.
- A part – time education scheme was introduced covering course fees, exam fees, learning materials and time off for exams and study.
- A third level interest free loan scheme for the children of employees encouraging them to attend college rather than follow the traditional route of seeking employment in the company, was provided.
- A computer purchase, interest free loan scheme was set up to improve computer literacy company-wide. Employees could be trained in-company by instructors or at home by family members many of whom had become computer wizards.
- Two major management development (education) programmes were launched, (1) Twenty one, middle managers were sponsored on a 5-year Diploma/ MBA programme (2) Thirty six, front line managers were enrolled on a Supervisory Management Programme.
- An Education Centre was set up in the company's Social & Sports Centre and two Learning Centres were established in Kilbarry and Dungarvan plants

representing a significant capital investment in education and training at a time of scarce resources.

Building an external network of resources

- The company arranged a top-level meeting with the Waterford Institute of Technology and agreed a charter for future co-operation on education and training, research and development and the sponsorship of specific initiatives. Over 30 initiatives were developed in aid of the education and training of all categories of employees and college projects.
- FAS in Waterford provided support in key technical areas such as forklift driving, health & safety, information technology, engineering basics and adult apprenticeships and traineeships in support of employees wishing to extend their skill base and on taking voluntary redundancy and early retirement.
- The Adult Education Centre /Central Technical Institute– provided adult literacy training for those in difficulty with reading, writing and numeric skills. The company worked closely with the centre and provided funding while observing strict confidentiality around employee involvement.
- The Irish Management Institute provided specialist training and education opportunities for managers in both degree programmes and specialist development programmes down the years.
- The Universities including, UCD, Certificate & Diploma in Health & Safety, UCC, Diploma in Professional Studies/ Managing Diversity, UL, Quality Management and Supervisory Management, UCG, Diploma in Training and Education, Open University, Diploma in Quality Assurance were a few of the many programmes delivered to employees.

- Professional Bodies provide access to specialist programmes and these included: CIMA and ACCA for accounting, IIPMM / IPICS for logistics, Irish Marketing Institute for Sales & Marketing and the Dublin Institute of Technology for Engineering Programmes.
- The Department of Enterprise, Trade & Employment provided many learning opportunities and funding through Skillnets Programmes, In-company Training Measures and EU Human Resource Development Programmes under through Employment – Adapt – Leonardo Da Vinci and Equal projects.

Developing a training plan

An annual training plan was produced and presented to executive management every year. On presentation of the final draft to the executive committee (heads of function) and their final input, the CEO, Human Resources Director and Training Manager signed off on it for implementation. The plan included the identification of training and communications needs and the responses in the form of education and training programmes. The business plan objectives set the context for all training interventions while the broader and longer- term needs of the employees were included in education interventions. The plan was also presented to the joint negotiating committee of the union whose input was welcomed and included.

There were ten key development areas of development in the plan.

1. Job Skills Training
2. Management Development
3. Continuing Education

4. Functional Excellence, skill training in finance, sales & marketing, logistics, human resources, manufacturing, legal and corporate affairs were developed.
5. Information Technology – hardware and software developments.
6. Engineering Technology and maintenance
7. Health & Safety and Environment.
8. Soft skills in team effectiveness / project management/ problem solving, report writing, running meetings, planning, leading, presentations and performance review.
9. Quality, cost, finance and customer service
10. Communications both formal and informal

The implementation process involved in-company training programmes, part-time education, external training options; consultancy supported projects and varied work experiences.

Implementing the plan.

The plan was implemented by management and a training team consisting of an internal network of trained personnel:

Full-time team: The full time training team consisted of a training & communications manager, training officers in Kilbarry and Dungarvan, a communications officer, information and engineering technology trainers, management development officer, an administrator and a full time video/CD ROM production unit manned by a qualified technician.

Training instructors operated as trainers in a part- time capacity. They acted as trainers when required to do so. The instructors were paid a premium as trainers returning to their jobs after the training period had ended. In this way they remained forever at the leading edge of the change process. Over 200 employees were trained since 1990 as training instructors. Each of them was selected on the basis of being the most credible and competent person in their department. They were employed to act as trainers, coaches, communicators, confidants, and change agents, problem solvers at source and team leaders, pointing the way through the change process in their area. Currently over 40 trainers operate throughout the company in a part- time capacity.

Information Technology Champions: Forty-two employees with an aptitude in information technology were trained to tutor in information technology skills company-wide. It was decided to use local champions to demystify the terminology and techniques. To get whole scale involvement it was essential to have trainers in whom the employees could trust and who would empathise with their difficulties and appreciate the learning context. Their presence was well received and they were able to encourage the most hesitant to engage in information technology skills training. They were successful in taking the fear and mystery out of the learning process. Over 1,400 employees completed ECDL and many progressed further to master a variety of software packages relevant to their work responsibilities.

Over 60 software packages existed in the company and ECDL was selected as the basic foundation programme for IT training for employees. The IT Champion acting as trainer and trouble-shooter was designated first port of call for employees. Many problems and queries were solved at source. The information technology expertise of

employees developed on a daily basis through the intervention of the champions. The IT help desk became a last resort when the problem reached beyond the capability of the champion. This innovative approach promoted information technology literacy throughout the company over a short few years in the late 1990s.

First Aid Personnel: A team of thirty employees selected from the different departments and shifts were trained as first-aid persons who provided an important first aid service company-wide.

College Lecturers: Twenty-two employees acted as part-time lecturers for the Waterford Institute of Technology, University College Dublin and the National College of Ireland in the Waterford Area. These employees and many others also acted as tutors, coaches and mentors for company based study groups requiring their help.

Multiple learning options address varied needs.

In-company pilot programmes.

The extent of the low level of formal education qualifications among 1,000 employees in Waterford Crystal and the size of the skill and knowledge transformation required called for new, innovative approaches to education and training.

The plan to up-skill the entire workforce presumed that as the workplace became more systemized and integrated, improved productivity would accrue from the greater cohesion and a common language. Additional benefits would be gained from the sum

of the parts whereas in the old workplace there was too much stove piping of functions and departments.

It was necessary to engage in specifically focused training programmes to deal with educationally disadvantaged employees in particular. Over the years it was proven that customized programmes were best designed to address specific needs and circumstances. There were three main approaches to developing customised programmes:

- (1) In-house training by trainers, information technology champions and external consultants who provided quality employee centred development programmes taking into account the circumstance of each employee.
- (2) Thirty innovative projects on employee development were designed through a collaborative agreement with the Waterford Institute of Technology. This agreement was signed in the early 1990s between executive management and the college heads. Between company and college a laboratory of innovation was created and several mould-breaking developments were established.
- (3) EU and Government sponsored pilot human resource development project that addressed specific disadvantage and insisted on collaboration between employer, employee and education and training provider.

The following are just five examples of courses developed between the college and company to address special operational needs and circumstances See (Appendix J pp 400-414).

- (1) **‘Crystal Economics’**: This course was a customised financial awareness programme incorporating the key operational financial areas. This programme was

run for middle and senior management some of whom had progressed from the craft and the shop floor. Its aim was to improve the financial literacy skills of management and to aid the management of cost improvement and competitiveness.

(2) **‘Expand’**: It involved the fast tracking of fifteen shop-floor employees through a specially designed eighteen- month development programme. The programme involved an assessment of career prospects, eight modules of training and a three month work experience in the new area of work identified as best suited to the abilities of the employee. Fifteen employees were selected from a panel of forty- five applicants. Since the completion of the programme all the participants have moved on in their careers both inside and outside the company.

(4) **‘Machine Operative Course’**: This was a customised introductory machine operator’s course jointly developed between the company and the college’s engineering departments. Its purpose was to introduce surplus blowers and cutters to engineering skills and concepts in preparation for a future transfer to machine operative and technician roles. The course involved two weeks attendance in full-time study in the college. The equipment, technology and processes used by the company were integrated into the learning process. Many of the employees who completed the course in the following academic year in September moved into three- year certificates in engineering technology/maintenance technology courses. A smaller number followed on to complete a two- year diploma and finally two further years to complete a degree in engineering.

In June 2006 three employees qualified as engineers following seven years of continuous part- time education beginning with the machine operators course. A total of ten employees have to date travelled this education route. They have become fully qualified engineers and craftsmen having already spent up to twenty years as blowers, cutters and semi-skilled employees. Through this alternative skills programme the company avoided the cost of redundancy payments and retained high glassmaking skills and the new engineering skills with significant gains to government, employer, employee and training provider.

(5) 'ECDL': Access to training in the European Computer Driving Licence was provided to all employees and their families in an effort to raise the level of computer literacy company-wide in the late 1990s. Information Technology Champions were selected (40) from all those with an interest, empathy and aptitude to act as IT trainers, tutors and trouble-shooters. The learning centre was designated an ECDL and FETAC accredited centre. IT champions were available seven days a week across all shifts and in all departments to service the ECDL training needs of employees.

Approximately 1,400 employees/ family members were trained in ECDL. From executive managers to general operatives a mass engagement in the programme created the basis for a new culture of learning. Successful results in this basic IT course led on to engagement in other more academic based education programmes. For many the ECDL was their first certificate and it encouraged many of them to continue once the first taste of achievement in skills training was accomplished. The next step was to achieve a more difficult nationally accredited job related qualification

and then on to a broader more transferable qualification, which provided many new career options for them.

(6) ‘Operational Best Practice Programme’: This programme involved an up-skilling experience for front line managers. They had mainly been promoted from the crafts. The programme developed with the local institute aimed to improve managerial capability in a new knowledge, technology based work environment. The programme contained 12 modules including marketing and customer relations, computer literacy, project management & problem solving, health & safety, standard cost/financial management, business analysis, team effectiveness, personal skills development, engineering/technical skills development, proactive industrial relations, process management and inventory management.

All these customized courses were developed to deal with specific needs and boost performance and were 100% successful.

In parallel the company engaged in EU human resource development programmes aimed primarily at educationally disadvantaged employees on the shop floor and front line management personnel.

Government and EU pilot projects 1995-2006.

The training & communications team was successful in applying for both government and EU Project funding to address the needs of educationally disadvantaged employees in particular. The department set out to create a learning environment that opened the minds of employees to best practice approaches nationally and in the European Union. In the mid 1980s management and union became involved in a European Shared Learning Experience with five other companies in Ireland to promote an awareness of competitiveness issues and to expose employees and union officials to new manufacturing concepts and forms of change.

From 1995 to 2006 the company participated in two Skillnets projects, one in-company training measure sponsored by the Department of Enterprise, Trade & Employment and twelve European projects sponsored by the EU. Waterford Crystal Ltd acted as the lead promoter in seven of these EU projects.

In 2001, the training and communications team produced a report “Learning with Europe” which summarized the learning outcomes for dissemination purposes.

Skillnets

The company participated in two Skillnets Projects aimed at developing a multi-skilled workforce. Two separate consortiums comprising large, medium and small companies in the southeast managed these two projects. The programmes were extremely successful with the small and medium companies in particular benefiting from the availability of training expertise and facilities within the larger companies. Employees from the large companies benefited from the myriad of experiences and

the sharply honed perspectives of employees in SMEs. The first project, SETTS (South-East Technology Training Strategy) was led by Bausch & Lomb and Waterford Crystal.

The Waterford Chamber of Commerce led the second project. Both projects provided subsidised training for employees working at the leading edge of the technological revolution in their respective organisations.

Department of Enterprise, Trade & Employment In-company training measure 2002-2006.

Waterford Crystal Ltd applied for support funding under this in-company training measure. See (Phase 5 pp203-316)

Overall, there were three main stumbling blocks other than finding the funding and time to engage. These were:

- (1) The absence of an acceptable entry point into the education system.
- (2) A deep lack of confidence in their ability to successfully pursue a long- term mainly academic course of study in a part time capacity.
- (3) The lack of a support system that included assessment of their aptitudes and the appropriate steps to be taken to take them through to the successful conclusion of their first accredited course.

It was the considered view of the training team following many pilot interventions that first step should be to eliminate the educational deficit. As long as the education deficit remained no amount of persuasion could convince a sizeable number of employees to consider progressing to third level education. The pressure for

knowledge-based skills in the workplace was forcing them to consider returning to education.

A Synopsis of Involvement in EU Human Resource Projects.

The lack of success in mainstreaming best practice outcomes from EU sponsored pilot projects was a blow to the aspirations of the company's training department. Many of the most imaginative products and the support structures were lost on completion of projects. The absolute concentration on meeting eligibility criteria and subsequent auditing of products and funds to the detriment of securing and mainstreaming best practices on conclusion was a mistake. As individual projects ended the overall programme of which they were a part ended. On signing off on the final report everyone moved on to the next round of initiatives without a backward glance. The partnerships and collaboration patiently built up was immediately undermined. Many outstanding products and learning outcomes were shelved and a great opportunity lost to help the educationally disadvantaged employees in industry and services across the country and the EU.

The shared experiences across Europe on business competitiveness, industrial change, employee education and training, employee development options, career prospects and working conditions / remuneration levels challenged perceptions and practices did help to form a more realistic appreciation of the competitive challenge of change and of benefits and conditions throughout the organisation.

The cross fertilisation of ideas, skills and knowledge, customs and practices and approaches to learning enriched the overall experience. Through participation in

projects with many different organisations across Europe the cold winds of international business competitiveness blew the last remnants of complacency among Crystal employees that had been built up around brand invincibility away.

The following is a short summary of the programmes in which Waterford Crystal participated and taken from the in-company report “Learning With Europe” (2002). All these programmes were pilot and innovative measures focused on addressing specific issues blocking the advancement of employees but in the main educationally disadvantaged employees adapting to industrial change.

Employment NOW – (New Opportunities For Women) 1996-1997

Project Promoter: Waterford Crystal

“The Crystal NOW Project” – involved 36 participants in identifying barriers to progress for women in the company and how best they could be removed. From the outcomes of the research a personal development programme was designed to progress women through the company on equal terms with male employees. It was the first time that a dedicated task force was appointed to address this issue in what was a male dominated manufacturing operation. The company employed 280 women across all areas from a total workforce of 1,600. All of the women involved have since progressed in their work with some of them enjoying outstanding success.

ADAPT Initiative 1996 –1998

Project Promoter: Waterford Crystal Ltd

KTCEP (The Knowledgeable, Technically Competent, Employed / Employable Person). The objective of this project was to develop an employable person by identifying future skill needs required by the company and the economy. The aim was

to design and implement a comprehensive training programme to produce more flexible and adaptable employees. Over 200 employees completed this programme and subsequently demonstrated widespread flexibility and inter-changeability capacities, which benefited the company and their own personal career ambitions. Many other employees took up a template of best practice programmes, which were made available over the following years. This programme was mainly responsible for transforming the skill base of the workforce from manual –craft to techno-craft, knowledge. It was a seminal contribution changing attitudes to work skills, education, qualifications, future employability and the role and contribution of the employee to competitiveness.

Leonardo Da Vinci 1996 – 1999

Project Promoter: Waterford Crystal Ltd

“MTEETP” (Monitoring and Targeting of Energy and the Environment Training Programme). This programme researched and developed appropriate software to manage the monitoring and targeting of energy usage (electricity, gas and water). The new software monitored usage at each outlet point across every department and it provided relevant information to those who were in positions to control it. The project also included the development of a training programme on the monitoring of this new innovative system. The training programme was piloted with eight employees directly responsible for managing the system. Significant savings in energy usage, a greater awareness of the costs associated with wastage and the development of a wider higher competency base around the efficient use of energy was established throughout the company.

It was the first venture in training shop floor maintenance employees on the management of environment issues. The data was published for the first time and made available company wide on environmental management issues. An environmental management awareness booklet was produced following on from the completion of the project. The project involved the company wide promotion of the savings to be made in the use of power. It placed a new emphasis on the role of departments in contributing to a more efficient system of power usage. The role and responsibility of every employee in monitoring and controlling the use of power was highlighted. Prior to this project the issues was confined to the heads of departments and more particularly to the environment manager alone.

Employment Integra – 1998 – 2000

Project Promoter: Waterford Institute of Technology

Titled ‘A New Start’ this project led by the local institute of technology and identified the needs of disadvantaged target groups in the community and how best they could be supported in participating in second and third level education. A key outcome of this project was the establishment of the “Regional Educational Guidance Service for Adults” which is currently located in the Waterford Institute of Technology. Both the programme and the ensuing service has been a very beneficial addition to adult education in particular in the area. Many disadvantaged groups and individuals have been supported in returning to education and to employment through this project.

Employment HORIZON 1998 – 2000

Project Promoter: Waterford Crystal Ltd.

C.O.D.E. (Creating Options for Disabled Employees).

The objectives set for this project included:

- (1) Develop an awareness of the issue of equality of opportunity for disabled employees in the company and in the local community.
- (2) Provide business related education and training opportunities for employees in the company and in the community.
- (3) Facilitate their ongoing survival and progress in a fast changing industrial environment.

In this project, which was outstandingly, successful one hundred and fifty participants were trained and certified. These included employees with disabilities in the company and also people with disabilities in the community, training instructors and front line managers responsible for supporting them. Following the completion of the course nine disabled people from the community were provided with full time employment. One other key outcome was the development of a 'diploma in professional studies – managing diversity' with University College Cork. Involvement with the university in developing and piloting the course was a great experience for the training department and for the employees who participated on the pilot programme. Lecturers from UCC travelled to Waterford over an eighteen-month period to deliver it. Twelve employees successfully graduated on completing the course. The course has since then being part of the university's prospectus. It is a valuable offering to many people working in a multi-cultural environment who need this qualification as the need for best practice in managing diversity grows.

ADAPT- BIS (Building the Information Society) 1998 – 2001

Project Promoter: Waterford Crystal Ltd.

Named 'VOLTAIRE' (Vocational On- Line Technology for the Adaptable, Interchangeable and Resourceful Employee). The objective of this project was to develop and deliver a wide range of information technology training programmes for different categories of employees to enable them master the new information technology platform driving the business. Major changes in processes and systems involved the introduction of new hardware equipment and software packages. Through this project 1,400 employees completed their ECDL. The ECDL was used as an entry foundation level and many employees continued to achieve certificates, diplomas and a much smaller number of employee's degrees in information technology. Equally the majority of employees progressed to learn specialist software packages relating to the different disciplines in the company. These packages included People-soft for human resources, Priam for sales, Qsys for quality, machine software for the control of machines and equipment, SAP that is the enterprise resource planning system and others. The company has over fifty different software packages and the ECDL provided the basic entry point into the development of information technology skills. Most employees are now computer literate and are performing to a very high level.

Leonardo Da Vinci 1998 – 2001

Project Promoter: Waterford Crystal Ltd

Named 'Sesame' This project was designed and delivered in collaboration with the local institute of technology to provide access to third level education for thirteen employees interested in pursuing further studies. The participants were educationally

disadvantaged not having completed the Leaving Certificate. They were interested in developing their qualifications to progress within the industry. All of the participants passed their exams and moved on to further study and the majority of them to new jobs within and outside the company.

Leonardo Da Vinci 1999 – 2001

Project Promoter: Waterford Crystal Ltd

Named 'WICCA' (Waterford Investment in Creating Comprehensive Advancement). This project was aimed at providing access to engineering qualifications for women employees. The course involved full time study for 18 months for 6 women – 4 in the company and 2 in the community. The company provided leave of absence for four women as a pilot project and also provided them with six months work experience in engineering related positions to enable them transfer the learning from their studies. The course was the certificate in manufacturing technology, which was run under the National Accelerated Technician Programme. All of the participants sponsored by the company achieved distinctions in their exams. There were only seven women in a class of thirty- five and the company sponsored six of them. One of the company's female employees gained first place in the country on completion of the course and was presented with a special prize.

Leonardo Da Vinci 1996-1998

Project Promoter: Orrefors (Glass Company in Sweden)

Named 'Competence Development of Trainers in Glass Manufacturing' this project produced a training programme for trainers in the glass industry through trans-national involvement. In collaborating with EU companies Orrefors a famous glass

making Swedish based company invited Waterford to participate in developing a course for trainers. The training department team enhanced its skills in developing a best practice competency development programme for trainers.

Leonardo Da Vinci 1999-2001

Project Promoter: Glass Training Ltd. (United Kingdom)

Named 'Dealing with Change in Glass Manufacturing'. The company – training department was invited to participate in a project by Glass Training Ltd, a UK based company that specialised in developing training programmes for employees in the wider glass making industry. The focus of the project was to develop a training programme for operatives in glass manufacturing. The outcome involved the development of a local FETAC accredited glass-manufacturing course customised to meet the needs of Waterford's employees. It became a foundation level programme for employees aiming to become technicians.

Leonardo Da Vinci 1999-2001

Project Promoter: FHTW (Berlin Germany)

Named 'PROSPERO' (Prospects for Design Professionals). Through their involvement in EU human resource development projects the training team were invited to participate in a project led by FHTW a technical university in East Berlin. The project was aimed at improving employee capacity in design capability using three dimensional design software. This project developed a design software tool for trainers and tutors in Institutes of Technology and Universities. It provided professional designers and artists with a convenient means of communicating with each other in a worldwide forum. The company acted as the laboratory for the testing

the new technology and the company's training and design teams benefited from the experimentation and finished product.

Leonardo Da Vinci 1999-2001

Project Promoter: Progetto Donna (Bologna, Italy)

TEE (Towards a European E- Quality). The company's training team and equality officer was invited to engage in developing a best practice-training programme on equality for human resource professionals. The aim of the project was to produce a training programme that would help improve the position of women in the workplace. In response to a number of pilot projects the company had committed to developing best practice on equality across the nine areas of discrimination. The disadvantaged position of women and employees with disabilities were particularly relevant in Waterford Crystal Ltd. Every opportunity to make progress in these two areas were grasped by a management team willing to learn and improve. Every employee helped to improve their position and performance was a benefit to the bottom line as their productivity improved with the attention and up-skilling they received.

Many of the employees who participated on these projects claimed that they represented career changing opportunities for them (see Appendix B p246) Joe Kelly 'participation as project leader in the Employment Horizon Project 'CODE' Project stated that *'Managing the CODE project was a transformational experience for me. I was able to develop a wide range of networking and negotiating skills dealing with a broad set of stakeholders ranging from disability agencies, employees with disabilities to the Departments of Enterprise, Trade & Employment and Social & Family Affairs officials'*.

Jim O'Neill (Appendix B p 65) *' I was strongly of the view at that time that unless I achieved worthwhile qualifications I would make little progress in my career '*

Jason King (Appendix B p 90) *'My participation in the EU Sesame Project was a life changing experience for me as through it I gained the confidence to believe that one day I would complete a degree course in third level education.*

A summary of achievements 1990 to 2006.

The following are a number of these achievements in the period 1990 to 2006:

- Two hundred employees were promoted to staff positions.
- Eight hundred employees were redeployed / transferred / promoted to new positions.
- Nine hundred employees achieved third level certification through part- time education.
- One thousand, four hundred employees completed ECDL.
- Between 1995 and 2001 twelve E.U Programmes were successfully completed. Two Skillnets Programmes were completed between 1999 and 2005. An in-company training measure funded by Department of Enterprise, Trade & Employment was completed, 2005-2006.
- The workforce was retrained, while the business was restructured and improved results were posted year on year from 1992-2001.

'All the changes and improvements were implemented in the period 1991 to 2006 without one day lost through strike action'

Awards won:

- The “Excellence Through People Award” was achieved from 1998 to 2002. Having achieved an extremely high mark of 965 from a maximum of 1,000 an exemption was gained for two years and the next audit was due in 2005 but did not take place due to ongoing restructuring of operations and staff.
- The “Positive to Disability” quality mark was achieved in 1998.
- In 2001 the company won the Irish Institute of Training & Development Awards for Large Manufacturing and the Overall Best Company Award.
- In 2001 the company won the Remy Schlumberger, International Award for Financial Participation.
- The company produced its first ever ‘Social Responsibility’ Report and the country’s second ever report in 2004. The report included progress on its commitment to employee development, community, sales and marketing and environment activities and standards.
- In 2004 the company won a Chambers of Commerce of Ireland Corporate Social Responsibility Award.
- In 2005 the company won three awards in the O2 Ability Awards Scheme for employing and developing people with disabilities.

Conclusion: Despite all the restructuring and there is more to come in 2006 the flexibility and competency of the workforce has improved and has underpinned the capacity of the organisation to adjust and deliver the business objectives in the most adverse set of circumstances imaginable. The Waterford brand is as strong today as it ever was and the rebuilding of the operational base will be successful because the

workforce and the brand remain the company's outstanding sources of competitive advantage.



Figure 33. Independent survey results 2001/2002. (Company source, 2006).

Figure 33 summarizes independent marketing survey results. The company continuously carried out independent trade and consumer surveys to monitor its sales and marketing performance and brand appeal. The above results were achieved in 2002 and demonstrated the power and appeal of the brand at a time of great difficulty in business, political and economic terms.

Since 1990 executive management sought to promote education and training as an essential experience for all employees. The training department produced a number of company education schemes that provided access to appropriate education programmes at foundation, second and third levels. A psychological contract was

developed that exchanged widespread support for engagement in education and training for co-operation on change.

This engagement in education and training covered the development of the empowered employee. The new employee was to be independent, employable, competitive, participative, flexible, interchangeable and adaptable. Education and training programmes where possible were accredited developing mobile qualifications, which would facilitate internal movement of staff and if necessary external job opportunity.

The two most common words and concepts subjected to repetition in the communications process throughout the early 1990s were competitiveness and employability and all efforts were focused in developing both. The experience gained in managing the process enabled the researcher to continuously reflect on the key characteristics and qualities of what constitutes an empowered employee. The empowered employee (See Figure 34) operates in the present but has developed a portfolio of skills and qualifications that ensures future employment covering a variety of roles and responsibilities.

An Empowered Employee
Has qualifications relevant to the future skill needs of the new economy
Has a variety of work experiences and proven competence
Is independent of current employer for continuing employment
Is a self- learner, in control of his/her own development?
Has clear career plan with access to continuing education and training
Is multi- skilled, flexible and adaptable
Is a wealth creator, tax-payer and contributor to economic and social progress
Is a recognised national asset on national register of intellectual capital?

Figure 34 Characteristics of the empowered employee.

- The flexible and adaptable employee in 2006 has acquired a good level of education, which has been a major influence in developing the characteristics as outlined above. Education has been the transforming agent for many employees. In particular it has been responsible for many of the striking differences and improvements in employee performance, progress and confidence. The improvement in performance and in the individual has accommodated many of the most difficult organisational and competitiveness changes at little cost to the company. It has played no small part in realising significant improvements in competitiveness as outlined in figure 37 p 190.
- Change to the person, his/her personality, behaviour, outlook, competency and ability to interact people at all levels and participate in projects and problem solving has been seismic. A number of previously educationally disadvantaged employees have reached the very pinnacle of success in private industry and in education through the company's learning organisation. Their success and that of all others who choose the road less travelled is a lasting tribute to the leadership skills at executive management who choose the education and training of employees as a critical priority in transforming the competitive base of the company 1990-2006.

Pre 1990	1990-2005	2006-2015	Rationale.
Leaving Cert	Third level degree	Cont Professional Dev	To manage and work in the knowledge, technology economy
Single skilled	Dual skilled	Multi-skilled	To maximise return for labour input and cost
Training	Development	Education/ Learning	Education as a basis for training and learning in a changing workplace
Manual	Technical	Knowledge Skills	Collating, managing and analysing information an important competence
Reliable	Adaptable	Flexible	Capacity and readiness to deal with a range of problems and opportunities
Cont Mgt	Change Mgt	Renewal	Competitiveness is a journey and not a destination
Teamwork	Team working	Multi-disciplinary teams	Capability to work in teams across functions and disciplines
Know job	Know process	Know business	Business literacy is a fundamental for all employees in a changing environment
Quality	Cost	Customer	Knowing the customer clarifies the change process for employees
Directed	Empowered	Led and developed	Leaders are needed at every level and development of team is a key issue
Read/absorb	Understand	Initiate	In a complex workplace, employee capacity to achieve is a key resource.
React	Respond	Communicate	The ability to communicate and listen are critical employee characteristics
Contribute	Intervene	Complete	For maximum results the employee must be able to solve problems at source.
Customs	Beliefs	Values	It is our values that make an organisation what it is and what it will become
Orders	Actions	Sharing	Sharing of responsibility, workload and information is a key resource
Recipient	Participant	Self learner /motivation	The emphasis will be on the individual to act
Qualifications	Experience	Competence	Competence in the knowledge economy the key determinant
Management	Technology	Innovation	Innovation the key to competitive advantage in the new economy
Capital	Systems/ Processes	Employee contribution	Intellectual capital a critical source of sustainable competitive advantage.
Organisation	Team	Power of one	In the new economy the role of the individual employee is so important
Manpower	Human resources	Multiple Intelligences	Gaining the voluntary commitment of employees using all their skills

Figure 35 Changing skills and knowledge base.

- Figure 35 indicates that there has been an inexorable movement towards complex, high value, knowledge based employment in the Irish economy between 1990 and 2006. This change at global and national levels has influenced changes in the job specifications of every employee in Waterford Crystal. Every job (there are over 400 discrete jobs in the company). Many jobs have become obsolete. New job specifications have been designed to address new areas of activity and responsibility. All jobs require new and improved skills to execute the tasks involved. All jobs are more integrated within the process, the supply chain and within the overall scope of the business, which has strong global connections.

Conclusion.

The micro context describes the business environment and the changes in which educationally disadvantaged employees were challenged to redeem their educational deficit. Case study methodology provided the scope to explore the metamorphosis that occurred within the organisation. It also facilitated the examination of employee adaptations as they were threatened with marginalization through skill obsolescence and the upgrading of operational processes and systems.

As the demand for higher skills emerged the marginalized future of educationally disadvantaged became more pronounced. The working environment in which they had excelled, no longer existed. New layouts, processes, systems, equipment, work practices and methods were introduced on a weekly and monthly basis as business process re-engineering teams and the industrial engineering department reviewed the

effectiveness of current operations. Most processes replaced or upgraded and most job specifications were improved through the introduction of a significant technological and knowledge input requiring a new set of skills and qualifications.

Employees were faced with a clear choice. Either return to college or gain the new qualifications to move on to higher skilled work or seek to survive on outdated skills for as long as possible, some until retirement. A number of employees decided to re-deploy downwards accepting a compensatory financial package for a loss in earnings until retirement. For the vast majority of those under fifty years of age a return to college while daunting and difficult was the only option open to them as they were too far away from retirement.

The company's determination to develop an informed and questioning workforce and the development of a learning organisation with the multiplicity of opportunity encouraged a mass movement back into education. The mobilisation of a wide range of expertise including education and training providers created a very supportive learning environment for all categories of learners. As the first group of successful employees graduated the interest in education exploded embracing everyone with an interest in gaining new qualifications.

There were a number of disastrous experiences as the more rigid academic approach from a number of lecturers led to mass defections from courses in the early days. Much work was done between college and company to eliminate the future reoccurrence of such an experience but bad experiences travel fast and wide and there

is no doubt that many potential participants were lost to education for ever on hearing of the failures.

The early negative experiences led to the submission of applications for participation in pilot EU, and government projects and the design of company led projects to deal with specific educational disadvantage. All of these projects returned a 95-10% success rate because they dealt in an upfront and comprehensive way with the issues and barriers and they were many and deep rooted. As the success of the pilot projects impacted positively on the change process, a new respect and confidence around participation in education and training developed and embraced the majority of employees.

Chapter 6. Summary of Findings & Implications, Research Phases 1 & 2

Five phases were completed within a planned research framework. The trail of evidence gathered was presented for interpretation by practitioners who could decide on its relatability to their circumstances and environments. The research framework involved:

- Establish a context as agreed with executive management, middle/front line managers and shop-floor workers in the period of the case study 1990-2006.
- Explore the different levels of employee understanding of the change process, competitiveness and employability.
- Identify the barriers and supports, which impacted on their ability to access education and training to meet their development needs.
- Analyse the results and summarise the outcomes in order to produce findings and conclusions and recommendations.

Phases one and two of the research established the context for change, competitiveness and employability within the company. Phase three recorded and analysed how a cohort of educationally disadvantaged employees in Waterford Crystal Ltd returned to education and gained new and more relevant qualifications. Phases four and five tested the outcomes of phases one, two and three by surveying through questionnaire format a broad mix of internal and external employee students.

Research phase four helped validate the findings from phases one, two and three of the research. Finally, phase five in collaboration with the National College of Ireland and funded by the Department of Enterprise, Trade & Employment tested the reliability of the outcomes of the previous four phases of research with educationally disadvantaged employees based in Waterford and Dublin.

The overall study facilitated the exploration of a collaborative model in which the basis for employability was first tested by Waterford Crystal and partners and then extended to educationally disadvantaged employees in the national workforce.

The study was aimed at finding best practice solutions for educationally disadvantaged employees to return to education. It is clear that an emergency time bound plan is needed to deal with a mature generation of employees with special needs around educational disadvantage. These employees are currently under pressure at work as their status is being undermined by the development of a new workplace that has not the same respect for their skills as new knowledge based skills take precedence. Many of them are middle aged and highly skilled in manufacturing areas that are decaying. There are others who are low skilled with valuable work and life experiences which remain relevant to the future but need an educational base to render them more relevant.

Rogers (1961) holds the view of the natural inclination for all people to strive to be the best that they can be. Findings from this study confirm his view. The level of self-motivation displayed in such great numbers in participating against the odds was

heroic. In the period 1990-2006 the majority of employees when presented with the opportunity, returned to education and training with great determination.

Many of them in mid to late career found it especially difficult but their pride, self-motivation and discipline was extremely high. Their lack of formal education was a serious handicap to them as they struggled to retain their jobs and level of remuneration. Those who wanted to retain their benefits and conditions and carve out a successful future had to confront their educational deficit. They had to acquire the skills and qualifications to grapple with global, knowledge, technology and legislative based concepts and principles. They urgently needed new skills to compete successfully for the new highly skilled jobs coming on stream.

Walley (1995 p24) contends 'people are becoming more aware of the growing importance of education'. He highlighted the fact that those with the lowest education levels have the highest levels of unemployment, as there is a continuous decline in the numbers of unskilled jobs. The vast majority of the current educationally disadvantaged will still be at work in ten years in 2015 (see Figure19 p150). They represent a potentially outstanding resource waiting to be developed. All they need is access to the relevant education and training opportunities backed by an adequate support framework to enable them tap into their true potential. The five research phases were sequenced to build a credible trail of evidence to inform our understanding of the issues.

Research, Phase 1. Summary of Findings.

(with ten executive managers).

Introduction

This research phase aimed at identifying and exploring the context in which employees found it necessary to return to education and acquire a new set of qualifications to enable them retain employment and participate more effectively in the new work organisation.

The target group involved in research phase one involved interviews with ten executive/ senior managers in Waterford Crystal. This research phase was completed between May and October 2003. The group included the manufacturing director, two plant managers and a plant superintendent from manufacturing, the logistics director, head of purchasing, head of production engineering, corporate analyst, business development manager for the international markets and the environment manager.

The objective of the research was to establish their understanding of current business environment and organisational change in which the company and they operated on a daily basis. Competitiveness, employability, future skills needs and the future of manufacturing in a globally competitive business environment were issues on which their views were sought.

This first research phase set the agenda for the following four phases. Executive management developed the business strategy, which led to the transformation to technology, knowledge based processes. It was expected that they would be best

informed on strategic issues, which shaped much of the change and created the context in which the study was carried out.

A mix of eighteen open and closed questions were prepared and tested with management colleagues as to their relevance to the objectives set for it. The ten executives represented four main functions of the business, manufacturing, logistics, corporate planning and finance. The questions were sent to the interviewee in advance of the interview to enable them to prepare for the interviews. The interviews took one hour each on average. The researcher/ interviewee took notes throughout the interview. Following transcription he returned them to the interviewee for ratification. Interviewees were encouraged to correct, add or delete. The following is a synopsis of the comments made at the ten interviews.

Summary of interviews with ten executive managers.

(Full Findings in Appendix E pp 343-354)

Q.1 – Define competitiveness

Summary: A common position on interpretation was the capacity to compete successfully in the global economy in producing a product or service that meets the needs and expectations of customers prepared to purchase it. The complete process had to meet the requirements of key stakeholders such as shareholders, employees, government, community and suppliers. A balanced scorecard approach to measuring outcomes on business performance best indicated sustainable competitiveness. (see Appendix E p343)

Q.2 What was the main changes in Irish manufacturing over the past five years?.

Summary: Global competition and the increase in the cost base have led to a series of rationalisations aimed at improving the competitiveness of manufacturing industry in Ireland. The current overall performance of the economy was satisfactory. (see Appendix E p343)

Q3. What were the main changes in Waterford Crystal Ltd over the past five years?

Summary: The step change to a high technology operation over a short period of time has led to the loss of some important skills and knowledge that effect manufacturing performance. Everything is geared to changing and improving the cost competitiveness base. New product concepts were developed which included a move to more contemporary product ranges to satisfy younger more fashion conscious consumers. The development of a more highly skilled workforce was needed to deal with continuous and deep- rooted change. (see Appendix E p344)

Q4. What are the key challenges facing Irish manufacturing over the next ten years?

Summary: Achieve sustainable competitiveness in the face of fierce competition from low cost countries. A skilled workforce was essential to compete at the higher value end of a more complex knowledge based global economy. Waterford Crystal exports 87% of its product and competes at the top end of the premium gift market. (see Appendix E p344)

Q 5. Describe the most successful Irish manufacturing model of the future.

Summary: Lean technology based manufacturing will become the competitive model of the future. This manufacturing model is customer focused employing high technology, knowledge based solutions in the production of high- end value product customisations. The model is agile, adaptable and responsive to customer needs and expectations in a fast changing market led business environment. Rapid change will be an ongoing feature of industrial development as research and development innovations drive new product development to gain competitive advantages and sustain growth strategies. A highly skilled workforce is required to support the new model. Continuous learning and development will be essential to sustaining success in a very competitive environment. (see Appendix E p345)

Q6. What new strategies can be developed by Waterford Manufacturing to improve performance?

Summary: Move to a high technology based industrial process using the most advanced technologies and management tools and techniques. Invest in developing the skills and knowledge of the workforce to enable them transfer to high value, technology based operations. Compete in the global economy at the high end of product development and the market place. (see Appendix E p346)

Q 7. What are the essential base qualifications required by management in Waterford over the next 5/10 years?

Summary: A good third level degree in engineering, business, financial or relevant career interests is essential. Top job skills, strong interpersonal and leadership skills, strategic and business literacy skills and information and engineering technology skills are in most demand in industry today. (see Appendix E p347)

Q8. What are the essential base qualifications required by employees in Waterford?

Summary: The key competency for employees at all levels is the ability to learn on a continuous basis in a range of circumstances. A broad basic third level qualification is needed by employees to enable them adapt to change and to engage in continuous life long learning. The capacity to learn quickly in a wide range of work and learning situations is essential. Competent job skills supported with information, engineering technology, business literacy, teamwork, communications, customer service, health & safety, quality and cost effectiveness are critical for employees in the modern workplace. (see Appendix E p347)

Q 9. What are the differences between the old (pre 1990) and new competencies / qualifications?

Summary: The main difference today is the capacity to deal with more organisational and global perspectives. Very few jobs in the private sector are shielded from direct engagement in changes in the global business environment. The changing content of job specifications are influenced by legislative and business competitive standards imposed from outside. All jobs are now more integrated into processes and supply

chains and a good insight into the global trade is relevant to many workers at this time.

The new workplace is more complex, knowledge and technology driven and requires higher levels of competence and qualifications to secure employment in it. Many employees are taking on increasing responsibility and are being made more accountable for their inputs and the performance of their departments. The technician responsible for machines and equipment is responsible for high volumes of production. S/he is responsible for ensuring that production is operating efficiently. The operative is directly responsible for the gains or losses and has to learn how best to manage the processes and equipment.

Another major change is the increase in teamwork and the need for multi-skilling leading to greater flexibility, adaptability and learning. Current employees need to be more broadly qualified, flexible and adaptable. Legislation on health and safety, environment, employee relations, quality, customer service, financial and cost issues makes many jobs more challenging and interesting. There are very few unskilled jobs in industry today. The employees of the future will need more formal qualifications allied to wide working experiences and mature social and people skills. (see Appendix E p348)

Q 10. What are the main opportunities for learning in Waterford today?

Summary: The interviewees expressed satisfaction with the number and variety of learning opportunities available to them in Waterford Crystal Ltd. Successful engagement in part -time education has led to selection for inclusion on project team covering a wide area of process improvements. This opportunity to immediately transfer the learning and the recognition afforded the successful employee / student in doing it was much appreciated. They usually led to a change of job or promotion for the participant. (see Appendix E p349)

Q11. What are Waterford's main competitive advantages?

Summary: The brand and employee capability and commitment were rated as number one and two. (see Appendix E p351)

Q 12. How would you define innovation in a manufacturing context?

Summary: Innovation is about developing new and clever ideas and techniques to improve products, processes and systems leading to improved costs, productivity, and quality and customer service standards in the company. It is about new inventions, new approaches in work methods, techniques and technologies making the processing streams more efficient and cost effective. The end result is a more competitive and profitable business and an improved capability among the workforce. (see Appendix E p349)

Q 13. How important is innovation in achieving success in Waterford Manufacturing?

Summary: The capacity to innovate is hugely important. The inventiveness and questioning leads to new approaches in solving problems and taking advantage of the opportunities that arise in the market place. A continuous improvement philosophy places cross- functional teamwork at the centre. This dynamic mix of different expertise and experiences is a ready-made context for the promotion and practice of innovative approaches to the most important manufacturing issues of the day.

The leading industries are those that are most innovative in developing their business. Innovation around systems, processes, products, work methods, layouts, tooling, machinery and equipment, craftwork, marketing and advertising strategies provide organisations with a competitive edge.

Innovation requires thinking outside the box, lateral thinking that challenges the status quo and involves an intellectual restlessness, which continually challenges and stretches employees, managers, suppliers and the community to embrace change and progress. This continuous search for new and better ways of working leads to superior performance is a key objective of all manager/leaders. (see Appendix E p350)

Q 14. How can manufacturing industry develop technical systems that are most open to human manipulation?

Summary: It is vital that the appropriate people, skills, experience and functions are represented from the design to commissioning stage to ensure that the technology is

right for intended use and that the user is fully trained. A user-training manual should be prepared as the technology is being commissioned to facilitate future training and development. The more complete the mastery of the equipment the better the results under a variety of conditions. Optimising the potential of equipment is an ongoing aim for technologists and operators.

The greater the manipulative machine capacity the more agile and flexible the process and level of customer responsiveness. Elasticity and fluidity of production systems is a critical success factor for competitive manufacturing operations. The increasing complexity of processes and systems, the more sophisticated the technical solutions. The shelf life of expensive technologies can be extended by continuous adaptation and manipulation as business demands increased productivity and quality on a continuing basis (see Appendix E pp350-351).

Q 15. Describe the optimum integration of functions that would best support superior performance in Waterford Manufacturing?

Summary: The integration of functions and business units in pursuit of a common set of business objectives is critical. Stove piping and fragmentation are both wasteful and inefficient approaches to organisational design. There is a need to establish a primary business vision and agenda that is shared by all across all functions. The sum of the efforts of a cohesive organisation is much greater than the sum of the various department and functions working in isolation. Establishing a shared responsibility for results across the organisation requires strong leadership capacity at executive level. (see Appendix E pp351-352)

Q 16. What are the key distinguishing features of a successful manufacturing operation in Waterford in the future?

Summary: The future will demand greater agility and speed of response. This objective will best be delivered by a lean manufacturing operation fully supported by the appropriate functions working in harmony. The underpinning support requirement will be a team of highly skilled employees who can deliver the business objectives. (see Appendix E p352)

Q 17. What will be the key improvements to management practice that best supports the new Waterford manufacturing model?

Summary: There will be a need to develop leadership capability at every level, which is capable of integrating functions and diverse interest groups into a cohesive unit. Continuous development of key managers through education, work experience and attendance at leading conferences and seminars is essential. Leaders are often only as good as the troops. To successfully lead a customer focused organisation that is becoming more complex and technology based and pursue continuously stretching targets, an educated and trained workforce is essential. (see Appendix E p353)

Q 18. What are the key changes in employee roles and responsibilities that best support the achievement of Waterford manufacturing objectives?

Summary: The consensus view highlighted the need to develop a highly business literate, self- motivated workforce. The employees need to become independent

learners who are capable of continually upgrading their skills and qualifications. The emphasis in the future will be on personal responsibility and accountability for work output, personal competence and adaptation to change. The age of the adaptable, flexible and employable worker has arrived. (see Appendix E pp353-354)

The senior management team shared many common views. These included:

- Predicted continuous change and learning- expected to increase in pace and depth.
- Need to develop a business literate, highly skilled workforce to underpin the drive for competitiveness.
- Re-engineer job specifications up the value chain as new products, product enhancements, new systems, processes, work methods and techniques and a more dedicated customer service culture develops.
- Invest in research and development and in gaining a first to market competitive edge.
- Move towards lean manufacturing and the use of a portfolio of the most relevant management techniques and models to improve cost competitiveness.
- Establish a wider employment agenda influenced by globalisation, facilitated by communications technology and challenged by statutory and legal standards and requirements from home and Europe all geared to protect and serve the customer and the greater good of society.
- Monitor the globalisation of business which has increased with the outsourcing of materials, equipment and product from all corners of the world, making knowledge of managing languages, time zones, currencies, cultures and customs essential.

- Understand and keep abreast of the requirement for speed, agility, adaptability and flexibility among employees and business organisations as a whole.
- Achieve a high level of business awareness on strategic issues.
- Move towards independently qualified employees working interdependently and effectively within a team context.
- Manage the growing complexity of work and the capacity of employees to cope.
- Appreciate fully the value and timeliness of addressing the needs of the educationally disadvantaged in a knowledge economy.

Research, Phase 2. Summary of Findings.

(With fifteen front line managers and ten shop-floor employees).

Introduction

The purpose of phase two was to elicit the views of middle/junior management and shop floor employees on competitiveness and employability issues in order to build up the context for the case study. Phase two involved a survey of fifteen middle/first line managers and ten shop-floor employees by questionnaire, which was carried out between November 2003 and February 2004.

The outcomes of phases one and two were combined with an examination of company records, in-house business plans and papers to which the researcher added his own knowledge and experience of developments to produce a very accurate context. The context sets the basis upon which phase three of the research involving interviews with 112 employees who had returned to education throughout the period 1990-2006. The context informs our understanding of the true nature and extent of the barriers and the supports needed to overcome them on returning to education.

Throughout the period 1990-2006 Waterford Crystal Ltd was a microcosm of the economy. Waterford exports 87% of its product and the economy exports 82% of gross domestic product. Both the organisation and the economy compete in the global economy at the higher end of the value chain. Both depend on retaining a competitive edge mainly through the performance of a skilled and competent workforce. These are just three areas of similarity and there are many others.

Phase two involved the design of a survey questionnaire involving twenty questions that were reviewed by management colleagues. The questionnaires were issued in November 2003 to fifteen middle/ front line managers and twelve shop floor employees. Twenty- five of the twenty- seven questionnaires distributed (fifteen from management and ten from the shop floor), 92.6%, were returned prior to Christmas 2004. The analysis was completed by the end of February 2004.

Summary of survey responses: (Full Findings in Appendix F pp355-387)

Q 1. Name 3 initiatives that would improve the competitive position of the company?

Managers (N=15).

Summary: Developing new markets, improving performance through restructuring of the organisation, developing greater flexibility through education and training. Improve the cost base to provide better profit margins. Establish a better working relationship between the US marketing and Irish manufacturing organisations were the main points expressed. (see Appendix F p355)

Shop Floor Employees (N=10):

Summary: Introduce lean manufacturing, new technologies, and new products, develop the skills and qualifications of employee, reduce costs and improve sales and marketing performance. (see Appendix F p356)

Q 2. What are your four key work objectives for 2003?

Managers (N=15)

Summary: Manage a wider set of critical responsibilities including work schedules, solving problems, inspiring colleagues, developing team and continually improving performance. There is greater scope for managers to use personal initiative, greater responsibility for achieving improved results and improved rewards and incentives if success is achieved. The operating context for managers is much more fluid has permeable boundaries and is responsive to customer requirements. See Appendix F p357)

Shop-floor Employees (N=10).

Summary: Accept additional responsibilities, engage more in improving local area performance and get to know the business better. Carry out duties more efficiently and effectively by working smarter. Become aware of the bigger picture and that you are adding value to the achievement of organisational objectives. Take responsibility for personal development, through improving competencies and through advancing your career. (see Appendix F p358)

Q 3. What skills and knowledge are required by you to carry out your duties?

Managers (N=15).

Summary: Leadership, IT, job skills, engineering, business literacy, higher education qualifications, people management and communications skills. (see Appendix F p359)

Shop- floor Employees (N=10)

Synopsis: Computer literacy, communications, process skills and improved flexibility. (see Appendix F p360)

Q 4. What new skills and knowledge you will require over the next 5 years?

Managers (N=15)

Summary: Strategic management, business literacy, IT, people skills, employment legislation and knowledge of customers. (see Appendix F p361)

Shop- floor Employees (N=10).

Summary: Management skills, IT, business skills, problem solving and process skills. (see Appendix F p362)

Q 5. What changes will be taking place in the company / department over the next 5 years?

Managers (N=15)

Summary: It will become more customer oriented. There will be an increase in the use of technology. Higher levels of productivity with less people and improved processes will be expected. Higher levels of flexibility and a continuous focus on cost reduction and leading to greater efficiencies to improve overall competitiveness is planned. (see Appendix F pp362-363)

Shop-floor Employees (N=10).

Summary: Increased use of technology with a reduced workforce involving less craft workers. (see Appendix F p363)

Q6. What innovations are likely to occur in your area and in the company over the next 5 years?

Managers (N=15):

Summary: There will be a concentration on improving technologies and systems. New streams of product lines will be developed. There will be greater consultation with and between employee categories and functions. Every employee will be expected to take on increased responsibility. (see Appendix F p364)

Shop-floor Employees (N=10)

Summary: Employees will be expected to master the use of information technology systems and develop new improved work processes, systems, methods and techniques. (see Appendix F p365)

Q 7. How important will employee capability be to the overall performance of the company over the next 5 years?

Managers (N=15)

Summary: Vital, critical, hugely important, extremely important, critically and crucially important. (see Appendix F pp365-366)

Shop-floor Employees (N=10).

Summary: Critical and very important. (see Appendix F pp366-367)

Q 8. (A) Does the company invest enough money in employee development?

Managers (N=15):

Yes –8 and No - 5 with one undecided.

Shop-floor Employees (N=10).

Yes – 3 and No - 4 with one undecided.

Q 8. (B) Are there any areas in need of special attention looking ahead to the next 5 years?

Managers (N=15)

Summary: Technology, health, safety & environment, people development, management of change, cross- functional teamwork, business awareness and the development of new skills and qualifications. (see Appendix F pp367-368)

Shop-floor Employees (N=10).

Summary: Technology, environment, up-skilling, teamwork and flexibility. (see Appendix F p368)

Q 9 (a) Will Irish Industry compete effectively in the future?

Managers (N=15)

Yes-8 and No-6 with one undecided.

Shop-floor Employees (N=10)

Yes-7 and No -2-no with one undecided.

Q 9 (b) what are the key issues to be addressed in facilitating competitiveness?

Managers (N=15)

Summary: Costs, customer responsiveness, more highly skilled workforce, improved management of national economy. (see Appendix F p369)

Shop-floor Employees (N=10).

Summary: Increased technology, business literacy, more highly skilled workforce and lower costs. (see Appendix F p370)

Q 10 Outline a person specification for a general operative position over the next 5 years?

Managers (N=15)

Summary: Personal initiative, health & safety, flexibility, multi – skilled, new technology and computer literacy. (see Appendix F pp370-371)

Shop-floor Employees (N=10).

Summary: Computer literacy, minimum Leaving Cert standard of education, teamwork, personal initiative and greater flexibility. (see Appendix F p371)

Q11 Outline the job specification for front line manager – 5 years?

Managers (N=15)

Summary: High IT skills, leadership, people management, systems knowledge, business literacy, good knowledge of process and a good formal education. (see Appendix F pp371-372)

Shop-floor Employees (N=10)

Summary: Leadership, people skills, change management, systems knowledge, communications and decision- making skills. (see Appendix F p372)

Q12 In what way can you contribute more to your department?

Managers (N=15)

Summary: Develop people, provide strong leadership, improve IT skills and get involved in planning and in the decision- making process. (see Appendix F p373)

Shop floor Employees (N=10)

Summary: Engage in education and training to improve competence. Build relationships and improve the level of business literacy. (see Appendix F p374)

Q 13 What changes would you like to see in the workplace that would improve performance?

Managers (N=15)

Summary: Develop a more integrated business. Improve team performance. Increase individual responsibility and accountability for overall performance. Establish a new more business-oriented culture. (see Appendix F pp 374-375)

Shop-floor Employees (N=10).

Summary: Improve teamwork. Up-skill the workforce. Increase technology and empower employees.(see Appendix F p375)

Q 14 Rate the following from 1-10 on their importance to the future success of Waterford Crystal?

The one list of competitiveness factors were rated by managers and shop-floor employee in order of importance:

Managers:

1. Cost reduction initiatives.

2. Education of workforce.
3. Education of management.
4. Communications.
5. Training of Workforce.
6. Training of management.
7. Leadership at executive level.
8. Introduction of new technology.
9. New product development.
10. Development of learning organisation.
11. Leadership at every level.
12. Cross-functional development.

Summary: Cost reduction is an ongoing priority with managers in the company over the past few years in particular since the millennium and the down turn experienced by the company in the US since September 11. There is an awareness of the need to educate the workforce. A unanimous view held by managers is that employees are more productive, more open to change, more easily managed and led if they understand the reasons for change and are part of designing and implementing it. A significant amount of change has been introduced since the early 1990s which was facilitated through customised education and training programmes. Many managers have improved their qualifications and leadership capabilities through in-company and nationally accredited education and training programmes.

Shop-floor employees:

1. Education of workforce.
2. Training of workforce.
3. Training of management
4. Leadership at every level.
5. Communications.
6. Cross-functional development.
7. Development of learning organisation.
8. Leadership at executive level.
9. Introduction of new technology.
10. Education of management.
11. Cost reduction initiatives.
12. New product development.

Summary: Shop floor employees advanced business performance and their own employment prospects through engagement in education. They view a continuous reliance on cost cutting as a negative bankrupt solution. Many cost cutting initiatives were introduced over the period including several rationalisations and restructurings without achieving the expected results. A widespread consensus developed among the workforce that every employee needed to return to education to gain new, more relevant qualifications. There is a need to up-skill to establish choice in future career moves either within or outside the company. The concept of employability is highly regarded by the workforce. There are many examples of successful career moves due to education and training involvement. These include promotion and moving on to new jobs. There is also a fear factor of losing jobs and having to re-deploy to lesser

jobs albeit with compensation. For many employees moving to lower paid and skilled employment is not an option and it often involves shift-work and a major change in lifestyle and in working conditions.

Q 15. If you were the CEO what would you do to improve performance in Waterford Crystal?

Managers (N=15)

Summary: Communicate the company's vision of the future and its business plan. Focus on costs and competitiveness and build a strong management team. I would increase the use of technology and would only start programmes and initiatives that I intended finishing. Many excellent initiatives have been launched with great fanfare and have not been finished which has led to scepticism and disillusionment on the shop floor. (see Appendix F pp377-378)

Shopfloor Employees (N=10)

Summary: I would communicate the business plan and focus on customer needs. I would develop new markets and maximise the contribution of employees. I would implement restructuring programmes and achieve the projected savings. (see Appendix F p378)

Q16 What do you understand by the term employability?

Managers (N=15)

Summary: An employee possessing the skills, knowledge and competence required by an employer at any given time. (see Appendix F p379)

Shopfloor Employees (N=10)

Summary: An employee with the appropriate competence to be employed throughout an entire working life. (see Appendix F pp379-380)

Q.17 (a) How important is employability to employees?

Managers (N=15).

Summary: Vital, critical and very important. (see Appendix F p380)

Shop Floor Employees (N=10)

Summary: Critical and very important. (see Appendix F p381)

Q. 17 (b) How important are employability to the company?

Managers (N=15)

Summary: Critical, vital and very important. (see Appendix F pp 381-382)

Shop floor Employees (N=10)

Summary: Critical and very important. (see Appendix F p382)

Q18. Do you consider that you are capable of taking up a position above your current position –If yes – what position / area?

Managers (N=15)

Summary: 14 said yes –1 said no. (see Appendix pp382-383)

Shop floor Employees (N=10)

Summary: All said yes (see Appendix 383-384)

Q.19 What is your attitude to continuous change?

Managers (N=15)

Summary: Very positive. I am in favour of it and okay with it. (see Appendix F pp384-385)

Shop floor Employees (N=10).

Summary: I welcome it, positive. (see Appendix F p385)

Q. 20. How can the company prepare for the change coming in the next 5/10 years?

Managers (N=15)

Summary: I would rationalise the business to an appropriate size. I would educate and train employees. I would get to know the market and customer client base and keep up with latest technologies. (see Appendix F pp386-387)

Shop floor Employees (N=10).

Summary: I would up-skill the workforce and educate and train employees. I would communicate with the workforce on the important business issues of the day. (see Appendix F p387)

Conclusion There was unusual consensus between managers and shop floor workers on many of the issues raised in the questionnaires. Due to ongoing and in-depth company wide communications over an extended period the level of business literacy and informed opinion was high and very reflective. A very positive attitude to change was expressed by a wide cross-section of managers and shop-floor employees. An outstanding feature of the answers was the unanimous view held on the importance and value of the employee contribution. The agreement around employee development augurs well for the future success of the business. The outcomes from phases one and two of the research creates an agreed context among a wide cross-section of employees, which provides a solid foundation for studying the process of eliminating the deficit of educationally, disadvantaged employees.

Chapter 7: Summary of Findings and Implications, Phases 3, 4 &5

Research, Phase 3. 'Return to Education' interviews.

(with one hundred and twelve employees).

The purpose of phase three of the research was to develop an understanding of the journey, employees had to travel to redeem their education deficit while working in a pressurized work environment and catering for family needs. Interviews were carried out with one hundred and twelve employees in Waterford Crystal Ltd between August 2004 and July 2005. (The interview questions and profiles can be located in Appendix A, p1 and B pp 2-325).

The questions were framed to elicit the information to be able to identify, record, evaluate and develop an understanding of the process through which educationally disadvantaged employees acquired new academic and technical qualifications. Through access to education this group of employees successfully competed for new knowledge, technology based jobs in a rapidly changing business environment. Between 1990 and 2006 they achieved national certificates, diplomas and degrees and were redeployed or promoted into new positions using the new skills they had developed. Through gaining new qualifications they ended up in more secure, rewarding jobs than at any time in their working lives.

The 112 employees were chosen as representative mix of educationally disadvantaged from 900 employees across the organisation that had successfully returned to education to improve their employability status. The 900 employees came from all

levels and disciplines, from graduate to primary certificate standard of education. These 900 employees had engaged in serious education programmes from an average workforce total of 1,600 employees between 1990-2002. Since 2002 the workforce was reduced further to 1,060 with the closure of the Dungarvan plant in 2005.

The 112 employees were selected from different work backgrounds, family and financial circumstances. The selection included the most representative group including men and women, old and young, craft and non craft, manager, union representative, shop-floor employee, those with both long and short service records, from Kilbarry and Dungarvan plants, those mainly without leaving certificate who had taken up general operative and craft positions.

Extensive interviews were carried out of on average 45 minutes in duration and involved sixteen questions (see Appendix A, p2-325). The questions had been tested with peers for relevance towards achieving the objectives set through the integrated research process. The interviewees had successfully navigated their way to new careers of possibility and promise in the new economy. The vast majority of the 900 employees who had returned to education remained in the company while others moved to new employment achieving some spectacular results along the way. Their personal experiences bear witness to the capacity of education to provide a range of new work opportunities for educationally disadvantaged employees.

The evidence gathered is useful in informing policy and decision makers on how best to tackle this once off problem which is a legacy of an earlier time of little opportunity in education and employment. The combined analysis of the first three research

modules offered rich information on employee development from which the recommendations were made.

On completion of interviews at which hand written notes were taken a profile of the each employee was prepared and returned to them for review and clarification. The accuracy of the profile was checked and changes and improvements encouraged. Following the return of the profile the final changes were made.

The phase 3 interview questions are to be found in (Appendix A p1)

The following are summaries of answers to interview questions.

(Full findings including a set of 112 profiles to be found in Appendix B pp 2-325)

Number of people interviewed	112
Personal and employment related statistics	
Married	87
Single	15
Average years of service with Waterford Crystal	24.11
Average age	42
Average school leaving age	16
Education - Level when entering employment	
Primary certificate only	22
Junior/intermediate cert (or equivalent)	58
Leaving Cert	32
Education – Level achieved on returning to college in part-time capacity	
% Those who entered third level and completed a national certificate part time.	98 %
% Who completed a national diploma part time.	75 %

% Who completed a degree part time while in work	45 %
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Barriers to education (company paid the fees and other expenses)

Lack of confidence	30
Balancing work & family & study time	29
Lack of time	28
Lack of Leaving Cert education (Many of them were provided with introductory programmes as a first step back to college)	13
Shift -working	12

Number of interviewees who cited these barriers.	112
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Synopsis -The main barriers were a lack of confidence, the matching of family, work and study time and shift-work. Many were fearful of failure and driven by a strong need to save their careers.

All of them emphasised how difficult it was returning to education after such a long absence. They had great difficulty in learning how to learn and study. They found it extremely difficult to establish a discipline around learning not being used to concentrating in class, engaging in study, in writing assignments and in sitting exams. ** Note All fees, course, exam, books and materials and time off for class and study were provided by the company.*

Supports on returning to education

Company funding	56
Learning culture created by training team and how executive management strongly advocating a return to education providing adequate resources to support it.	30
Support from training department	28

Family support	29
Encouragement from managers	24
Peer study groups	19
Number of times these supports were cited as number one or two	186

Synopsis: the record of engagement in part time education programmes show that those with education – management/staff were more likely to engage in part-time education than hourly paid employees. Those with qualifications were more aware of the necessity and benefit were better able to cope with course content and valued the opportunity more than those with little education attainment. Many of the people who returned to part-time education had participated in special EU pilot programmes. Though these pilots they conquered the initial fears and inhibitions. Special initiatives were sponsored through a partnership approach between the company and the local institute of technology specifically aimed at easing the way for other categories of employees. The programmes addressed overcoming the barriers for disadvantaged groups. These groups included women, people with disabilities, low skilled, those with literacy difficulties, older employees, surplus craftsmen, employees needing to change career path.

Their initial response was reflected in fear, lack of confidence, excuses not to engage, personnel and work related problems. Lack of confidence was by far the most difficult barrier to overcome and funding did not invariably become an issue until the fear/lack of confidence factor was eliminated. Once the employee had made up their minds to participate then funding became a major issue. Finally the

learning culture developed and promoted within the company including, the availability of coaches, tutors and mentors, study groups, study facilities, education support schemes, incentives including new work experiences, promotion from within, project involvement were all absolutely crucial in gaining a high participation rate. There were a small percentage of highly committed employees who were prepared to return to education with little help but they were very few.

In hindsight would you have pursued a different development route and career path?

Yes	99
No	13

Synopsis: Most participants regretted not returning to education sooner. In many cases circumstances had dictated their choice to join the workforce at an early age. Choices in education and career paths were never available to them. They remained for a long number of years unaware of their academic and formal learning potential. The benefits associated with the craft, the high self –esteem, high remuneration distorted their view of education until the bubble burst in 1987 with the first major rationalisation following thirty years of uninterrupted growth.

It was only when the transformation came including savage cutbacks in pay and benefits, changed work practices and a serious reduction in craft numbers that many employees for the first time began to seriously their future. At all times a small number of employees had engaged in part-time education activity but they were the exceptions.

In the new economy employees without a Leaving Certificate were often in difficulty in learning new technology, knowledge concepts and in being selected for technology based jobs. There was initially strong opposition to change and the introduction of new technology. This opposition was driven in some quarters by fear of losing current status and of inadequacy around knowledge based equipment, processes and systems. All of them were convinced that they should have completed their second level education and where possible move on further completing third level education as full time students.

It became obvious from changes in job specification, an intensive company-wide communication programme and the overall change process that education was the answer to their problems. In the new economy a good basic secondary education or its equivalent was an essential entry requirement into the workplace. For many employees entering employment in the 1960s, 1970s and 1980s the completion of a second and third level education was difficult to achieve. The great variety of academic, craft, technical and personal development programmes currently available through the institute of technology sector had not been available to them in their earlier years.

What motivated you to return to education?

To change career or achieve a promotion.	26
Company transformation/ insecurity of employment	21
Self improvement	21
To become more employable	13

To create more openings for new job opportunities	10
The personal challenge of achieving an academic qualification	6
Higher remuneration.	2

Synopsis: The main factor was the crisis in the company at the time and the lack of job security. There was also the inflexibility of the qualifications held by those in the craft and in other related jobs. Waterford Crystal was the dominant crystal manufacturing plant in the country. All the others were workshop type enterprises and provided a much reduced benefit package for employees. Waterford Crystal was the only such company in the southeast region and a first class employer. Many craft positions were becoming obsolete. The replacement jobs were mainly staff or non -craft jobs requiring a range of new technical and academic based skills and knowledge. A further incentive was the dedicated promotional campaigns carried out throughout the company and the many resources and facilities available. The availability of a range of supports was provided by the company in the form of education and training schemes, programmes and projects, which enabled employees, learn new skills and re-deploy or are promoted into new jobs.

What difference has your educational experience made to you as a person?

Improved self- confidence and the scope to progress career.	49
It has provided the opportunity to change career.	20
Developed greater business knowledge and understanding of change	19
Created new opportunities for participation, advancement and promotion	15
Improved competence levels.	12
Improved job security and the possibility of work for life.	4

Synopsis: The satisfaction gained from completing the first accredited course created a new dynamic within the person. The chains were loosened and a new liberated employee emerged determined to progress further in the education and in work. The entire 112 employees interviewed all progressed through several programmes and experiences. The skills were transferable both within and outside the company and gave them a massive boost to confidence. The fear of redundancy and unemployment began to recede and replaced by an even greater determination to achieve further qualifications. Their initial success became the catalyst for instilling a new found confidence, the raising of ambitions and a growing realisation of their capacity to build an alternative career path through education.

Their 'first step' into formal education and training was the key. It was for them a very personal achievement. It transformed their outlook on work and life and gave them a massive boost in confidence. All of them expressed the view that their self-confidence had improved immeasurably. They were better able to engage with management in the company and with other business people in social settings. Many of them were in a better position to challenge for new job opportunities. They were better able to participate in a wide variety of projects. They developed a better understanding of the business. They were much more positive about change and the possibilities available to them in education and in the workplace. Their jobs provided them with greater satisfaction and fulfilment as a result of being qualified to take on greater responsibility.

What are the issues to be addressed in enabling employees return to education?

Funding	31
Mentor/manager support	30
Direction and guidance	18
Communications on the benefits of education.	16
Time off work	14

Synopsis: The company covered the fees, materials, exam fees and other costs along with providing time off for classes during shift work, study and exams. Thirty- one interviewees nominated funding as the number one issue. They were fully appreciative of the funding support they received. They stated that without the other support structures in place they would not have considered participating. Many of them needed the close support of mentors and managers all through their initial educational experience. Their confidence level was so low and the challenge appeared so great at the time of starting out.

They also indicated that if funding had not been available very few would have returned to college. At the time wages and benefits were being reduced, the cost of living was increasing and most of them were caught in mid- career with heavy family responsibilities including mortgages and the children's education. They were also contributing heavily in income tax and PRSI payments.

The mental and physical effort required of them in returning to education from a low formal education base having been so long away from formal schooling

coupled with the increased pressure of a fast changing work environment would have been too much for them if they also had to borrow to pay fees and associated costs (travel, refreshments and course materials). The family budget would have been decimated and it would have been a step too far for them. The provision of mentor and tutors to support college classes and the organisation of study groups helped get many people through the low points. This mentoring facility was mainly provided on a day-to-day basis by the training team and its instructors. Empathetic managers (and there was many of them willing to help out) made a huge difference to getting people through to completion.

There was a need to create awareness of the benefits and the consequences if they did not engage. There were elements of ‘push’ with consequences and ‘pull’ with incentives involved. The promotion of the special supports available was critical to gain the interest of the low qualified. The special EU, government, institute of technology and company pilot programmes were essential to broadening the base of participation in education among the educationally disadvantaged.

What are the most important basic skills and competencies needed by employees in industry today?

Information technology skills	58
A good education (minimum leaving certificate preferably a 3 rd level degree).	39
Communications, written, verbal and technical	40
Flexibility and adaptability	29

Interpersonal skills	26
Team working	15

Synopsis: The critical skills included information technology, a leaving certificate, a third level degree or a craft, trade or traineeship. Good people skills with a capacity for adaptation and flexibility were essential. A positive attitude and openness to change and the capacity and willingness to learn was highlighted in most if not all interviews

In hindsight, would you have pursued a different career path?

<u>Yes</u>	92%
<u>No</u>	8%

Synopsis: All the interviewees said they should have stayed on in secondary school. Most of them regretted not having pursued a third level education. Many of them admitted it was not possible due to family circumstance or their personal disillusionment with their early educational experience. In hindsight they realised how important education was to career development and advancement. A good education offered the possibility of a quality working life and a high level of remuneration. Over 90% would have preferred different careers. Most of them would have opted for a professional career. Their recent educational experience improved their confidence and appreciation of their potential to make progress in alternative areas of more responsibility and challenge. Their work, life experience had over the years motivated them to make much more of their working lives. Many of them

expressed a wish to gain positions of influence rather than be subjected to the vagaries of the change process without any means to deal with it. Most of them would have liked to be in control of their own working destinies and saw a professional career as giving them a high level of personal satisfaction and career security.

What were the three/ six most significant developments that impacted on your career to date?

- 1- First job change, new work experience, project involvement, short- term transfer or secondment to a new work area or project.
- 2- First 'back to education' achievement i.e. (ECDL, In-company training programme, taking up additional responsibility at work).
- 3- Support from a mentor, coach, tutor, study group, college lecturer or a manager.
- 4- Achievement of a certificate, diploma or degree in third level college.
- 5- Achievement of promotion to a more challenging and responsible position using the new skills and knowledge acquired.
- 6- Departing the company to take up a new position elsewhere.

Synopsis: The most important development for employees was their own personal decision to address their educational deficit. This was usually followed by either an invitation or an application to participate in a specific human resource development project, attend an in-house training programme such as ECDL, return to college to complete a third level education course, move to a new job or adapt to changes in their current job.

When the first change challenged them to reach out beyond their current capacity and to use new skills and knowledge they immediately knew they had to acquire new skills fast if they were to secure a long term future in the company or gain employment outside it. The most meaningful developments centred on moving

beyond their comfort zones and starting to learn new knowledge, skills and techniques. Their world of work was changed from an easy manageable experience to one of challenge, change and adaptation, which created much discomfort and some fear and anxiety. Once engaged in new learning it became interesting and rewarding for them. The achievement of their first new qualification was a cause of great celebration for them and a boost to their team and department.

Conclusion

Phase three represents the core research element of the study. It sets out to explore the many challenges faced by educationally disadvantaged employees (many with high skills).

Personal motivation, fears, difficulties, barriers, supports, achievements and reflections as expressed in depth by the interviewees provided clear evidence of the need to establish a comprehensive education and training provision at national level for educationally disadvantaged employees. There is massive bank of under utilised potential lying dormant in the workforce if the Waterford Crystal up-skilling process is a true barometer of the national scene.

The findings from this research phase indicates a well spring of potential which is currently lying dormant nationally due to the inability of educationally disadvantaged employees to access a range of multiple intelligence based education and training provisions. Employers and government stand to gain if this well of talent is liberated through access to new education and training programmes. These employees had already played a major role in creating the Celtic Tiger economy. They are very

experienced and skilled. Many are high achievers but they need immediate access to an educational qualification that will round up their development and employability status in the new economy.

All the interviewees indicated a burning desire to recover their status through education. Their complacency around not returning sooner had been coloured by the high earnings and commendations from customers associated with the crafts. Their lack of education, at different times, frustrated them in work, at home and in social and recreational circles. It became an inner dissenting voice. It needed a coming to terms with business reality to drive them back to education.

On completing the courses they were thrilled with their success. Their feeling of satisfaction was palpable. It showed in all sorts of positive reactions both in and out of work. This new learning experience enriched their working, social and economic lives. Their main regrets was the delay in returning to education, the valuable time lost and the unnecessary trauma endured throughout the recent transformation as their vulnerability was exposed to the world. On reflection they expressed delight with what they had achieved. Through education they became more flexible and adaptable. Addressing the many new challenges in the new knowledge economy no longer posed problems. The change process had created a new world of opportunity for them with their new set of qualifications.

In many instances the current education system was not structured to take them on board. Without help from the company and its many support structures very few would have engaged and completed the courses. Tutors played major roles in

facilitating the educationally disadvantaged employees to re-enter college and settle down to study, learn and practice. Some outstanding results were achieved with the help of empathetic tutors. Some disastrous results were reported when tutors were unprepared and unwilling to connect at their entry level and take them through the stages to complete their first qualification. Eddie Meaney (see Appendix B p108) *'The course structure and content was geared towards the needs of full-time Leaving Certificate students. It was not very accommodating to adult employee students who had been away from formal education in the class- room for a long number of years.'*

Tony Tracey (see Appendix Bp12) *In my class 36 students started the three- year certificate in manufacturing technology course and only 12 students finished it.* There was a combination of reasons as to why so many dropped out. The main reason was the lack of empathy and willingness of a small number of lecturers to reach out to the employees students and take on board their difficulties. It only took failure in one subject/ module to fail the course while it took success in 8/10 subjects/modules to gain the certification. There were very few employees who did not have particular difficulty with one or two modules. Some outstanding negative experiences damaged the prospects as bad news travelled like wildfire throughout the organisation. The large number of successes was responsible for attracting many new recruits to education and training programmes.

The most important feature was the building of trust between employee and tutor for educationally disadvantaged employees. Poor tutor preparation, difficulties in the workplace and pressure in domestic circumstances all contributed to negating the positives of the recruiting process. The employee student just could not be convinced

to continue on the basis that the issues would be addressed at some future time. Often times they were not addressed anyway as the only solution was often the removal of the lecturer or trainer or course organiser of the programme.

Maths proved to be a particularly difficult subject to master and special study groups and mentors designated by college and company to get employees through the maths course. The study groups worked brilliantly for those who remained in the courses. They were able to sort out a lot of issues within the group and its extended network of expertise.

The biggest difficulty as repeatedly outlined in the research was a lack of confidence around completing a nationally accredited course over one, two or three years of continuous study. The bar set for them was very high as they were unused to learning, studying, sitting exams, and for some reading and writing. They were all successful and experienced employees and very good in their jobs. Michael Evans (see appendix B p172) 'By far the biggest barrier to success in returning to education for me was a major lack of confidence and a lack of belief in my ability to complete a nationally accredited course of study in a formal setting'. Michael went on to complete formal education and training programmes and became a senior manager in the company in the late 1990s.

The majority of employee students possessed a tremendous amount of tacit knowledge, technical knowledge, common sense, and the ability to work hard and effectively in a team and achieve stretching targets. They were experts on production, quality, cost, customer service, problem solving, and projects and in many cases new

technology, systems, work practices and new product developments. Those who returned to education were usually the most competent and resilient. They were very determined to overcome the many barriers they faced throughout the duration of the course or several courses of study.

An outstanding feature of the research was the evidence produced of the high level of intelligence and potential of the employee cohort that engaged in part-time education. The difficulties overcome embellished the results achieved in very challenging circumstances. A second feature was the credibility of the executive management message and the mobilisation of so many resources. The FETAC/HETAC qualifications ladder provided many routes into third level for the broad mass of employees from different education backgrounds.

Over the past ten years a multitude of new jobs in manufacturing, service and business have come on stream which require qualifications across a range of work disciplines drawing from a multiple of intelligences. It is predicted that many higher skilled jobs will come on stream in the future requiring new skills and knowledge as Ireland continues to move up the value chain and competes in a high cost economy.

Another feature discovered in phase three was the seminal impact of a range of pilot measures in addressing the needs of disadvantaged groups. Unless the specific disadvantages and barriers are addressed in a supportive environment there is unlikely to be very little take up on programme offers. The one curriculum approach to fit all educational needs will not work. In planning a once off comprehensive programme

for earlier generations of educationally disadvantaged employees a range of best practice education programmes has to be designed and supported.

Phase three of the research also outlines in graphic form the gains to be made by employees, employers, and government and education providers from investing in a comprehensive education provision. If government and social partners can agree a truly comprehensive and inclusive set of education programmes a tremendous boost will be provided to the economy in the form of newly qualified and experienced workers coming on stream. The economy will become more competitive over the coming decade. The potential to improve productivity, quality, customer service, innovation and research and development is available. Ireland needs urgently to develop a learning economy in which every employee at whatever level is provided with access to a one step up in their education at this time of great opportunity for the employers and employees.

Employee education programmes need to be employee centred, backed by employers and led by the government who are in the best position as managers of Ireland Incorporated to make sure that all the resources available are co-ordinated and put to the best possible use. In that situation every employee will have the chance to realise his/her potential with significant social and economic gains accruing to the economy and society.

The following are a selection of successful employee re-education experiences.

Alan Stone (see Appendix B, p153) who began his career as an apprentice blower and through tremendous commitment to education gained two primary degrees and a number of career changes before being appointed as a director of Microsoft Ireland.

Michael Evans (see Appendix B, p172) after close on thirty years as a craftsman was promoted to a senior management position in the company before moving on to occupy a management position in the Waterford Institute of Technology.

Tommy Brennan (see Appendix B, p23) who joined the company as an apprentice blower and graduated to become a branch manager with the Bank of Scotland in his mid thirties.

Michael Vereker (see Appendix B, p35) who joined the company as an apprentice cutter and graduated to Manager of Manufacturing Quality.

Jim O'Neill (see Appendix B, p65) who joined the company as a general operative and became the company's business analyst before moving on to become Senior Solutions Manager with AOL.

Eileen Slattery (see Appendix B p122) who joined the company as a general operative in the Packing and through a range of education and work experiences graduated to marketing for Waterford Stanley.

Dennis O'Connor (see Appendix B p8) who joined the company as an apprentice cutter and graduated to IT director with TDI Resources.

Tony Tracey (see Appendix B, p12) joined the company as an apprentice blower and graduated to the position of Process Software Engineer with the company through education interventions.

Andre Thompson (see Appendix B, p316) who joined the company as a retail assistant and who returned to education to graduate as a solicitor.

George Brett (see Appendix B, p81) who started as an apprentice cutter and through a number of education interventions graduated to become European Health & Safety Manager for Bausch & Lomb.

Michael Ryan (see Appendix B, p228) who joined the company as a general operative and through a whole series of education achievements graduated to become Health, Safety & Environmental Maintenance Manager with Lapple Ireland Ltd.

Lisa Hayes (see Appendix B, p53) who joined the company as a general operative and in returning to education gained the qualifications to be appointed as an industrial engineer.

Conor O'Neill (see Appendix B, p97) who joined the company as a lifeguard at the Crystal Swimming Pool and through dedication to education completed a primary and masters degree in computing and now works as a computer programmer.

Tom Gleeson (see Appendix B, p221) who joined the company as an apprentice cutter and graduated through the ranks to become a plant manager through continuous access to education, training and a variety of new work experiences throughout his career.

Alice Power (see Appendix B, p5) who began her career as a general operative and through involvement in pilot programmes NOW, Expand, WICCA and other education and training programmes worked her way to become a data-auditing manager.

The above are a selection of employees who responded positively to the opportunity to build a new competency base. They were all previously in the 1990s, deemed educationally disadvantaged. Through their outstanding commitment they progressed to new and more highly skilled employment within the period of reference 1990-2006.

Research, Phase 4. (Waterford Institute of Technology)

(with eighty part-time students).

Introduction

This research phase moved outside the company to analyse a wider constituency of opinion and experience on participation in part –time education. The survey by questionnaire was designed to elicit information from employee / students in a number of programmes in the Waterford Institute of Technology. The participants in the survey came from a wide range of employments (including Waterford Crystal).

Through the survey questionnaires were distributed to one hundred and five part-time employee students attending the college between April and June 2005.

Permission to carry out the research was sought and granted. The head of continuing education organised the distribution of the questionnaires. Eighty of them from one hundred and five (76%) were completed and returned.

The high return was achieved through the support given to the project by college staff and a number of Waterford Crystal employees who participated in the survey and encouraged their colleagues to complete it. College staff distributed and collected the completed questionnaires over a three- month period to June 2005.

Summary of Findings (Full findings on question 5 in Appendix G (pp 390-393)

(1) Distance from college? (N=80)

0- 4 miles	24 employee /students
5-19 miles	24 employee /students
20-39 miles	19 employee /students
40-78 miles	13 students

Summary: It was very striking the distance employees were willing to travel to attend courses to improve their education qualifications. It was equally revealing how limited were the education options for employees in the south – east covering a very big area including Waterford, Kilkenny, Wexford, South Tipperary and Carlow. Travelling to Waterford from long distances after a hard day's work two nights per week and a half day Saturday is a heavy commitment for a person with family responsibilities.

(2) Education level pre current course (N=80):

Degree:	17 employee/ students
Leaving certificate or equivalent:	29 employee / students
National diploma:	7 employee / students
National certificate:	10 employee/ students
Junior certificate or equivalent:	8 employee / students
Primary education:	3 employee / students
No response:	6 employee / students

Summary: Forty-six participants achieved a Leaving Certificate or higher level of education. Several research papers on attendance in part-time education confirm that those who are already educated are more likely to return to education for further learning. The least likely to return to education are the educationally disadvantaged and low skilled. The questionnaires were sent to a mix of classes including degree, diploma, certificate and foundation programmes. The driving force for engagement in part-time education was the improvement in terms of employment status, job retention, possibility of promotion and the likelihood of been given new responsibilities.

The national uptake for employees in part-time education is 7.2%, which is an extremely low participation rate for a knowledge economy subject to continuing and deep-rooted change. The life cycle of technology, knowledge and skills have all reduced rapidly and there is a clear need for higher qualifications to deal with the continuing uncertainty and upheaval in both manufacturing and service industry. Since 1994 over 800,000 additional people have joined the workforce increasing it from 1.2 million to 2 million with many of them needing access to further education.

(3) Employer Status? (N=80)

Private Manufacturing	44
Private Service Companies	21
Public Service	12
Unemployed	3

Summary: Sixty- five employee/ students came from the private sector. The private sector is very vulnerable and competitive. It is experiencing continuous change and security of employment is under threat all the time.

(4) What is your occupation? (N=80)

Professional (engineers, accountants, IT specialists, civil servants etc)	16
Management (supervisors, charge-hands, foremen to senior managers)	15
Skilled Workers (technicians, quality inspectors, secretaries, trainers, clerks and admin)	30
General workers / operatives	12
Trades	2
No response from	5
Unemployed	3

Summary: Many categories and levels of workers are included in the overall group. Continuing education is for everyone as change and opportunity in the workplace is coming in all areas and at all levels. Continuing education is required to update skills and maintain them.

(5) Course type, duration, study time and who covers the fees? (See Appendix G pp 390-393)

Synopsis: Courses Attended: Primary Degrees = 4, National Diplomas =32, National Certificates =44.

Duration of Courses: 35 courses @ 3years 20 courses @ 2years 25 courses @ 1year

Classes per week: 56 @ 2 nights (6hours) 18 @ 1 night (3 hours)
6 @ 2 nights + Saturday (9hours)

Study time per week: average 5 to 15 hours per week.

Funding of courses: 35 courses funded by employers 36 by self and 6 shared between employer and employee with 3 undeclared.

(6) Why did you join the course? (N=80)

Advance career / progress in the workplace	29
Change job and start new career	18
Personal improvement through further education	15
Acquire better qualifications	11
Gain promotion	03
Gain higher remuneration	02
Out of interest	02

Summary: 78 of the 80 participants attended college to improve their employment position. These had a clear objective set for themselves. Many of them made extraordinary sacrifices in paying the fees, travelling long distances, combining work, study and family and in making special arrangements to attend classes while working on shifts.

(7) What were the barriers encountered? (N=80)

Funding	31
Time	29
Travel	14
Lecturers and course structure	11
Working arrangements	10
Study Difficulties	08
No Barriers	12
No Response	06

Summary: Funding was cited as a major issue with 36 people having to fund their own education fully. It placed a huge strain on family budgets along with absence and the stress on the individual in combining work, study and family responsibilities. In some instances the distance and time in travelling to and from the college added an additional strain on the participant. As the participants were aiming to improve their position at work they were expecting to get a return and regarded the effort and expense as an investment. A new qualification leading to a better job and possible promotion with increased remuneration were considerations driving participation.

(8) What supports were available to you? (N=80)

Company (funding and time off)	41
Family (accommodation and encouragement)	41
Class / Group Study	27
Library	06
College Lecturers	03
None	05
No Response	02
Self	01

Summary: Most participants cited at least two supports. By far the most important were company, family and class / group study supports. Company supports were funding and time off for class and which was particularly important if the participant was working on evening shifts and or needed time off the study for exams. The family support was fundamental and the hours in class and study were substantial infringements on family time and when added to time at work.

(9) What were the expected benefits? (N=80)

Gain new job	30
Gain new qualification	17
Progress in job	13
Gain promotion	08
Increase remuneration	07
Self-growth	03
None	01
No response	01

Summary: There was a high expectation expressed that many would gain new and better jobs, gain new qualification and make progress within the workplace. Gaining promotion and a higher remuneration were some of the incentives, which encouraged employees to engage in part time education at a time of great change and opportunity.

(10) What do you intend doing next? (N=80).

Participate in a new course	18
Don't know	15
Attend degree course	14
Attend diploma course	08
Concentrate on work/career	10
Change career	09
No response	05
Training	01

Summary: Forty participants indicated their intention to continue on in education with 19 planning to focus on their work and their careers. The 15 respondents who have yet to make up their minds (don't know) are interesting. There is possibly a need for them to undergo assessment and counselling on future direction and to receive information on available progression routes.

(11) What were the most significant developments in your career? (N=80)

Changing jobs	32
Completing a course	17
Promotion	15
Travel	01
Investing in property	01
Don't know	01
No response	13

Summary: Sixty-four participants nominated changing jobs, completing a course and promotion as the most significant developments in their careers to date. These advances for whatever reason are most likely to require education and training and the development of new skills and knowledge.

(12) Has this or any other course influenced your career to date? (N=80)

No (not yet, expectation is there)	35
------------------------------------	----

Yes	26
Promotion	04
No reply	15

Summary: Clear evidence of expectation that improved education qualifications will facilitate progression in the workplace.

(13) What should be done to assist the maximum number of employees attend third level education? (N=80).

Provide funding	28
Employer support	20
Improve course structures	12
Promote course availability and benefits	07
Improve lecturers	02
No response	11

Summary: The payment of fees and facilitation by employers with time off for class attendance and study are the main requirements. Reward for successfully completing the courses is an important incentive for current and future participants. The improvement of course content, flexibility of delivery and addressing tutor difficulties with adult part time students under pressure needs careful attention.

(14) How important is being employable in the workplace today? (N=80)

Critical, vital, extremely or very important	70
No response	10

Summary: Employability is a key issue of concern to employees. In a changing, volatile employment situation the capacity to move between jobs and employers is a serious objective for many employees. As the low skilled and least formally educated are most likely to be the first to lose their jobs in a redundancy situation they need all the help they can get to access the necessary educational supports to make them employable. A number of responses included the need for multi-tasking, flexibility, adaptability, learning and the capacity to cope with ongoing change.

(15) How important is the contribution of the employee to the performance of the company? (N=80)

Very important, vital.	67
No response	13

Summary: A wide range of comments supported the view that the contribution of the employee was very important. These included:

Companies are entirely dependent on employees (repeated many times).

Employees are the backbone of organisations

Most important asset (repeated)

Nothing gets done without them (repeated)

Most important resource (repeated)

Not always recognised as critical

Nothing achieved without dedicated employees (repeated)

Vital in flat organisations

Unskilled employees cost companies

Companies are only as good as their workforces.

All the responses were summed up in that employees have the capacity to make companies either great or low performing entities.

There was general consensus that the contribution of the employee was critical to the success of the enterprise. Employees have the capacity to make or break a company and their competency was a primary issue in achieving results.

(16) How important is third level education to accessing job opportunities today? (N=80).

Very important, essential.	70
No response	10

Summary: There was unanimity on the need to acquire further qualifications to improve career prospects. People were prepared to go to extreme lengths to gain additional qualifications. This included opting for part time education, travelling long journeys, paying the fees and setting time aside for study at the expense of their recreational time. There was a great awareness of the change-taking place in the workplace and in the economy. There was a general consensus that jobs were becoming more complex and needing higher skilled workers. The benefits to be accrued from education were understood and many believed they were worth the pain and discomfort experienced. The answers very much supported the phase three research outcomes in that employees needed higher education and skills to respond to the increasing complexity and demands of the workplace.

Conclusion.

The research findings imply that if a range of comprehensive and supportive employee centred education programmes relevant to sector needs were designed and delivered in a flexible manner there would likely be a massive take up of courses. The key to participation is to remove the barriers. The challenges for employees are big enough without having to face into further barriers and obstacles making it near impossible to participate in the current pressurized work and living environment. It is very clear that employees are interested in improving their employability status. They want to progress in the workplace, earn a higher level of remuneration and improve their living standards.

There is a growing awareness among employees of the need and value of education. They experience this need every day as they grapple with increasingly sophisticated technologies, systems and work practices. They also witness those with qualifications being appointed to the better jobs. Education programmes need to be friendly, relevant, accredited, achievable and valuable otherwise those who are disadvantaged, sceptical, fearful, unable and dismissive will never be persuaded to engage. It is essential that sufficient numbers engage and prove the benefits to be gained from it. The pioneers will set the standard for others to follow. Maslow's hierarchy of needs outlines the principle of sequential priority in dealing with levels of perception and pain. The majority of employees will only be convinced of the benefit in gaining new work related qualifications when the dissatisfaction with low qualifications is perceived to be greater than the pain involved in gaining new qualifications.

Research - Phase 5, A Certificate and Diploma.

(for 77 educationally disadvantaged employees).

The purpose of research phase 5 was to collate and analyse the experience of two levels of educationally disadvantaged employees who participated in two customised courses in Waterford and Dublin. Both courses were held in both locations with forty employees (20+20) attending the two courses in Dublin and thirty-seven (20+17) for the two courses in Waterford. On evaluation of the outcomes of a range of internal and external led pilot programmes for the educationally disadvantaged the training team in Waterford Crystal identified the need to provide work based alternatives to Junior and Leaving Certificates. Educationally disadvantaged employees needed a way into the national qualifications framework at Levels 3 and 5. Level 3 would take them back into the system Level 5 directly into third level education.

The planning process for these two education interventions had started in 2001 prior to the beginning of the Ph.D. in early 2002. It was intended to research the development and implementation process as a key element of the overall Ph.D. study. The aim was to produce two, Level 3 and 5 FETAC courses for two groups of employees who had consistently been identified as needing help in redeeming their education deficit. The strategy included using work based subjects in which they had already acquired significant expertise to ease their path to the finishing line and to have it all fully accredited it at year-end. The benefits would include entry on to the FETAC/HETAC ladder, the accreditation of prior experiential learning, the development of a new capacity for learning and upskilling as a trainee in technology and the potential to achieve a much greater level of flexibility and adaptability in the

workplace. The plan included piloting the two programmes for national consumption once the evaluation had ironed out any of the flaws in them. The National College of Ireland outreach network throughout the country was a ready network to mainstream them and gain the backing of all institutions re future entry points.

The Dept of Enterprise, Trade & Employment under its In-Company Training Measure 2002- 2005, part funded the programme. The National College of Ireland, dedicated to adult education were part of the project consortium, which included Waterford Crystal Ltd, Bausch & Lomb, Honeywell Ltd, Plato South-East, Dublin City Council and Dublin Bus, private, and public sector employers. The role of the college was to design, develop, deliver and accredit both programmes. The certificate and diploma courses were appropriately supported and provided participants with a rare opportunity to return to education at a level most suited to their need. The learning from the in-company pilots and EU and Government supported pilot programmes since 1995 had encouraged the training team in the company to make the application to the Department of Enterprise, Trade & Employment which was successful

There was much discussion on the content of the programmes and the work related subjects that would best capture prior experiential learning and provide a platform for future skills development. A number of attempts were made before agreement could be reached between employers and college. The college continually resorted to finding favour with off the shelf prototypes while the employers insisted on customisations that would better meet the needs of the employee categories identified.

Both courses were a first step back to education for the two different groups. General operatives were targeted for the FETAC level three certificate. Front line managers and technicians were targeted for the FETAC level six certificate (used diploma in title for pilot purposes and prior to accreditation). In designing the courses the college assumed expert status. A learning outcome was the need for a third party overarching body mandated to iron out the difficulties between industry and education on the needs of employees and companies. The educationalists assumed expertise in the area of curriculum development while the employer was very convinced of what would best support the employee and industry wanting education to produce to a brief. The targeted groups were most vulnerable to change in the workplace and needed special supports and attention. The weaknesses and strengths were highlighted in the evaluations at the end. See official evaluation (p.312)

Due to differences between industry and education on the aims of the programme and on the funding process the FETAC accreditation which was a major incentive to employees and their future prospects is now unlikely to be delivered. A college certificate has been offered to employee students instead along with direction on progression routes which does not meet one key objective of the programme. The other elements of the programme have been delivered and the students rated it as a defining experience for them in both their personal and work lives. Many of them have since moved on to further their education on overcoming the first and most difficult hurdle. The lack of confidence in their ability to complete a nationally accredited course was their main issue. The palpable relief and pride engendered on completion was liberating for many participants. The EGFSN Fourth Report (2003 p

71) recommends that enterprise development agencies and educational institutions should come together and develop specific courses based on identified skill gaps in order to satisfy skill requirement in industry. Programme for Prosperity and Fairness (2000, p106) highlights the need to 'deepen business education linkages and co-operation in the context of curriculum formulation and resource allocation'. Key stakeholders need to let go of traditional roles and jealously guarded demarcations and adopt a more open and innovative partnership approach to employee upskilling. There is a need to establish a co-ordinating body to manage the partnership process and to agree and deliver on objectives.

Employers best understand the context, conditions and needs of employees and business. Educationalists have the expertise to produce professionally accredited learning options. Government hold the most comprehensive overview on national and global developments.

Three papers were produced by the researcher. These were, (1) 'Closing the Gap' An Education Platform for Employability & Lifelong Learning, sent to President of the National College of Ireland with the purpose of gaining her support for the programme (April 2002). The second paper was prepared to recruit employer based consortium members and also for internal consumption within the company. It was titled a - Proposal on a New National Employee Education and Training Initiative. 'Bridging the Knowledge Gap' for Employability, Competitiveness & Inclusion (May 2002) The final paper was the application to the in-company training measure, titled, 'Activating and Nurturing Employability and Competitiveness' (November 2002) which was submitted to the Department of Enterprise, Trade & Employment.

All three papers made the case for government intervention in offering a 'minimum' standard of education for employees to parallel the minimum wage. Employees at the lowest end of the skill chain needed the minimum wage for protection. They also needed a minimum level of education to assist them retain employment status and compete for progression to the next level of employment in the future.

If a minimum education standard of education and qualifications was implemented current educationally disadvantaged employees would earn above the minimum wage and would furthermore be empowered to progress as independent learners for the remainder of their working lives. Remuneration follows qualifications and competence. The minimum wage will serve to act as a safety net while their development is under way. The overall need for a base education level for all workers is the critical learning outcome from all the pilot programmes engaged in by Waterford Crystal in the 1990-2006 period.

The two courses developed between industry and education were:

Certificate in Employment Skills:	September 2004 to May 2005
Diploma in Business Skills:	September 2004 to July 2005.

There were four main elements to the course development strategy:

- (1) Accredit previous and relevant work experiences through a carefully designed certificate and diploma programme. This accreditation of prior experiential learning was addressed by including work related subjects in both programmes. It enabled the employee/ students to use the knowledge and experience they had gained work to

complete the course. The one- year nationally accredited certificate programme placed them on the FETAC/HETAC progression route at FETAC, Level 3. This proposed nationally accredited programme was geared to act as a minimum qualification that would be presented to all employees free of charge. It would represent their first step on to the new qualifications framework.

The diploma course was designed to meet FETAC, Level 5 requirements. On completion it was planned to provide successful students with direct access to third level education in Institutes of Technology and Universities. The huge bank of informal tacit knowledge held by both sets of course participants was formalised and accredited through the courses.

- (2) Design a learning experience that encouraged educationally disadvantaged employees to successfully engage in a formal education setting. The targeted participants worked in both low and high skilled jobs and ranged in age between 25 and 60 years.
- (3) Achieve a nationally accredited standard and act as a basis for gaining access to continuing education. All the evidence produced in this study confirms that once an educationally disadvantaged employee overcomes all the barriers in completing a first nationally accredited course back in education they are all very likely to continue in education until they achieve their work and education aims. At the very least they want to gain sufficient qualifications to set themselves up in work for the foreseeable future.

- (4) Build collaboration between industry and education in order to customize accredited programmes that meet the needs of educationally disadvantaged employees. An employee centred approach in the context of the needs of enterprise would remove the barriers to education and liberate the potential of the employee for competitiveness and the greater good.

The content of the first course back needed to include the main work place subjects and the key operating principles and practices. On achieving a successful return to education the academic bar could be raised from 40/60 in favour of practical concepts to 60/40% academic and to whatever breakdown that would meet the requirement of fully fledged degree programmes in time. Employees found such academic subjects as maths, difficult to master on the engineering based courses. Many employees had to be provided with foundation courses in maths to overcome their difficulties.

Those who participated in the certificate in employment skills course included general operatives, clerical and tradesmen. Many of them had extensive work experience but an insufficient level of education to gain further qualifications to help them cope with the new more highly skilled jobs coming on stream in the new economy. In returning to college they were addressing their educational deficit and building the capacity to participate in a lifetime of continuous change and learning in knowledge, technology based economy.

Those involved in the diploma in business skills had made significant progress in their workplaces. They were more immediately ambitious having been promoted to positions of responsibility based on their previous track record and achievements.

They had an urgent need to acquire a third level qualification, certificate, diploma or preferably degree to secure their management, leadership status in work. They had through their innate technical and leadership expertise achieved a supervisory, team leader, technician role without the benefit of a third level qualification. Many of the new job vacancies posted required a third level qualification. Their future career progression demanded a third level qualification and returning to college was the one way open to them to achieve it.

Both the certificate and diploma aimed at formalising and accrediting much of their prior learning. The subjects were work related including many familiar concepts and knowledge sets used by them on a daily basis in work. Both programmes were designed to accommodate the use of prior work experiences and tacit knowledge and have it accredited within one academic year. It was considered a much better, alternative to completing the accreditation of prior experiential learning by the portfolio route. For many employees the portfolio (APEL) option was stressful, demoralising, embarrassing and unsatisfactory as the onus was placed on the applicant to prove the integrity of their previous learning experiences.

The academic, industry relationship as represented by auditor and employee applicant was one of superior / dependent which at times created further division. Many successful and experienced employees did not favour this process. The certificate /diploma route was a dignified and welcome alternative. Their lack of confidence was more easily managed through it as it was employee, student centred. In addition the diploma was designed to provide them with a range of progression routes into a third

level course of their choice. The incentives were very strong for both certificate and diploma participants.

The certificate course aimed at building up the confidence of general operatives wishing to progress in the new workplace. Returning to education was a difficult and often threatening experience. At the same time many of these workers had under utilised potential that could be activated with the benefit of a good basic education. One of the key elements of this course was in 'learning how to learn'. It would also help to build confidence in their capacity to pursue a course of study which would open up for them a life of learning and development at a higher level more suited to the new demands of industry in the 21st century.

The diploma course was aimed at employees who had progressed to positions of responsibility as frontline managers, trainers and team leaders. They needed access to third level to consolidate their progress in the new economy and to move on further to higher skilled and more responsible positions. Many of them had high aptitudes and were outstanding workers. Their low education base ruled them out in competition for more responsible positions. Their outstanding performance on the job had gained them promotion to front line manager, leader or trainer positions. Their job specifications changed as the industrial landscape changed. To retrain and progress a third level education was usually the passport required. For all levels of management the requirement was a third level qualification or its equivalent.

Certificate in Employment Skills - September 2004 to May 2005

Thirty- seven employees (twenty in Dublin and seventeen in Waterford) joined the certificate course in September 2004. Thirty- three participants finished the course. Seventeen (52%) completed the survey questionnaires.

Analysis of seventeen questionnaires.

Gender Mix?

Male	15
Female	02

What is your job category?

General Operative	06
Semi-skilled	03
Trade	03
Clerical	05

Is your employer, public or private?

Private	07
Public	10

How many years service have you completed?

0-9 years	09
10-19	04
20-29	01
30-39	03

What is your formal education Level?

Primary	01
Junior Certificate	11
Leaving Certificate	05

In what year did you complete your formal education?

1968,1972,1975, 1976, 1978, 1979,1979,1979,1986, 1989, 1993.1997, 2000,

No response 3

Why did you join the course?

Update skills	07
Self – improvement	04
Improve job prospects	03
Gain qualifications	02

What will you do next?

Continue in education	06
Diploma	09
Don't know	02

What were the barriers to completing the course?

Literacy (reading/writing)	01
Travel	03
Low confidence	05
Time	05
Shift work	02
No reply	01

What were the supports in completing the course?

Tutors	09
Supervisor	01
Family	03
Class	02
None	02

What did completing the course mean to you?

Improved confidence	08
Qualifications	02
Sense of achievement	06

Lift in morale	01
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What was the best part of the course?

Totality	04
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New skills	04
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Equality & Diversity	02
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Computers	01
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Interaction	06
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How could the course be improved?

More feedback	06
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Better structure	05
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Location	01
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Promotion	01
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Information Technology	01
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Maths	01
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No reply	02
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Will the course help you in work?

Awareness of business issues	06
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Progress in work	07
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Encourage others	01
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Greater confidence	02
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No reply	01
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Summary: From the results of a mid term evaluation of the course and the survey questionnaire, participants stated how positive they were about their experiences on the course. All of them indicated a belief in the need to return to education. They wanted to gain further qualifications to enable them to progress in employment. They also wanted to improve their self- confidence and achieve more from work and life. They were acutely aware of the changing work environment and the importance of improving their skill base. For some, it was a first ever engagement in a nationally accredited certificate course. An important outcome was the evidence that low skilled employees are interested in improving their qualifications and employment status. They all indicated a desire to better their employment prospects through education.

Conclusion: The challenge for employers, government and education and training providers in facing into a technology, knowledge based economy is to offer development opportunities that are relevant, achievable and credible to all categories of employees. There are hundreds of thousands of educationally disadvantaged employees requiring a 'one step up'. The lower their skill base the greater the help they need. They are very dependent on others to help them begin a lifelong learning journey. It is also true that there is greater room for improvement among the low skilled category. There is an immediate gain to the economy. These low skilled and educated employees have many opportunities to develop while in work. Learning outside of the workplace in college and community can be transferred into the workplace on a daily basis if the circumstances are right. There is a huge amount of

earning potential lost to the economy by the current lack of educational opportunities for employees.

Diploma in Business Skills, September 2004 to July 2005.

Forty participants (20 in Dublin and 20 in Waterford) completed the course. Twenty-five completed questionnaires were returned, a 63% return rate. This was very high for a pilot programme involving people who were nervous and hesitant about returning to education and had to be canvassed strongly to do so. Fourteen questions were prepared to elicit the first hand experience of the participants on returning to education after a long absence.

Analysis of the twenty- five questionnaires

Gender mix?

Male	17
Female	08

What is your job category?

Management/staff	08
Clerical	07
Trades	05
General Operative	05

What is the status of your employer?

Private Sector	11
Public Sector	14

How many years have you served in employment?

0-9	11
10-19	05
20-29	06
30-39	02
40-49	01

What is your level of formal education?

Leaving Certificate	12
Junior Certificate	09
National Certificate	03
Primary Education	01

Why did you join the course?

Access third level	13
Progress career	06
Self fulfilment	03
Promotion	01
Invited	01

What do you intend doing next?

Degree course	07
Diploma	02
Continue in education	06
Don't know	06
Progress in company	04

What was the biggest barrier in returning to education?

Organising the time	14
Balancing family, work and study	05
Lack of study skills	03
Tiredness	01
Lack of information on course	01
No response	01

What was the best support to you in returning to education?

Tutors	15
Employer	06
Family	03
No response	01

What was the best part of the course?

Interaction with students and lecturers	07
Learning new things	06
Results	04

Health & Safety	02
Self-confidence	01
Equality & Group Dynamics	01
Project	01
Social Responsibility & Business ethics	01
No response	02

How could the course be improved?

Extend to two years	09
Improve course structure	07
Improve tutors	04
Improve course material	02
Improve communications with students	01
Include basic computing	01
Make it more practical	01

Will completing the course help you in work?

Yes	16
Hope so	08
No	01

How important is access to continuing education for you in your employment?

Very important	14
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Move to degree	04
Personal development	03
Promotion	01
Don't know	01
Age factor	01
No response	01

How important is the employee contribution to the performance of your work organisation?

Vital	02
Very important	22
Not too much	01

Summary: Comments included - employee performance critical for quality, customer service, completing tasks, getting things done, facilitating change and that everyone contributes to the overall success of the organisation.

Conclusion: All the respondents were very focused on the benefits of participation in education programmes. They were convinced that their engagement had opened up new opportunities and possibilities in the workplace for them. They were very clear about why they participated and what they had achieved.

The provision of education and training programmes designed to encourage and support educationally disadvantaged employees back into education would meet

with a very positive response. This group of employees from private and public companies were at one in recognising the value of education and their need to gain new qualifications to enable them realise their career objectives in the future.

Official Evaluation Report on both Programmes

An independent consultant independently evaluated the results from the two courses in order to validate the work and recommend improvements prior to launching both projects nationwide. Project criteria included this official independent evaluation. The findings in the evaluation report confirm many of the views of the participants and the findings in the previous four research phases. Bruce (2006 p59) (the independent evaluator) stated that 'The project (in-company training project) was conceived and developed in the context of developing the capacity for adaptability and lifelong learning among the participants'. The courses were well received and participants and tutors report satisfaction with the content and structure of the program. The courses produced strong and positive outcomes in terms of learning, a significant increase in personal confidence, introduction to study methods and the opportunity and relevance of applying the learning in work-related contexts'.

Once again it is highly unlikely that the programmes will be mainstreamed, as there is no real support or means for establishing the programmes as educational options countrywide. A strong overseeing body is required to ensure that the learning is captured and used to finalise two nationally FETAC courses as entry programmes into a lifelong education and training progression route. No such body exists and the effort will have been in vain.

Overall Summary

For every threat there is an opportunity. The expanding European and world markets provide Irish based companies employing educationally disadvantaged employees with a challenge to develop their potential and put it to work in the new economy. Irish entrepreneurs and employees have had sixteen years of competing in a very competitive environment and building specialist experience and expertise in an expanding global economy. They have gained a head start in developing business opportunities worldwide. To secure this advantage it is imperative that employees at every level are provided with open access to education and training.

The supply chain is an integrated system in which all employees add value or stifle overall performance. Any supply chain is only as strong and agile as its weakest link. Every employee in the chain has to be very good at his/her particular job or the overall speed to market will be restrained. It is absolutely essential for employer, employee and the economy that a crash programme is needed to address the needs of educationally disadvantaged employees to support economic and social progress.

The speed of change in the Irish economy requires every employee in Ireland Inc to develop a broader set of qualifications. Figure 36, p306 outlines four areas of competence, which are essential for employability. A good basic education is required to build the skill and knowledge sets outlined in all four areas.

Figure 36 below graphically depicts the broad range of skills that is provided by a holistic approach to employee education and training that is required by all categories

of employees operating at all levels in the organisation. There is a need for employees to gain the necessary educational qualifications, become expert on current job, function skills, develop a range of soft skills and most of all develop an attitude and aptitude on continuous learning which will enable them to adapt to change on a continuous basis. The four sided development portfolio is very necessary if the employee is to become and remain employable in the future.

The critical implication of the findings in the research is that educationally disadvantaged employees require a good grounding in education to enable them to independently take charge of their own development needs and allow them to progress in work and society in line with their potential and aspirations.

It is not sufficient to train the educationally disadvantaged employee in specific skills because they will remain vulnerable in future change environments as the skills become obsolete or less critical. This thesis advocates the acquisition of a broad education base rather than engagement in immediate skills training for educationally disadvantaged employees. The ability to learn in a variety of situations is critically important. 'Give a man a fish and you will feed him for a day' – 'Teach a man to fish and you will feed him for his life'.

A balanced approach to redeeming the education deficit of educationally disadvantaged employees will reap the best long-term reward for employer, government and the employee. Figure 36 was developed from the experience of the researcher and from findings in the study.

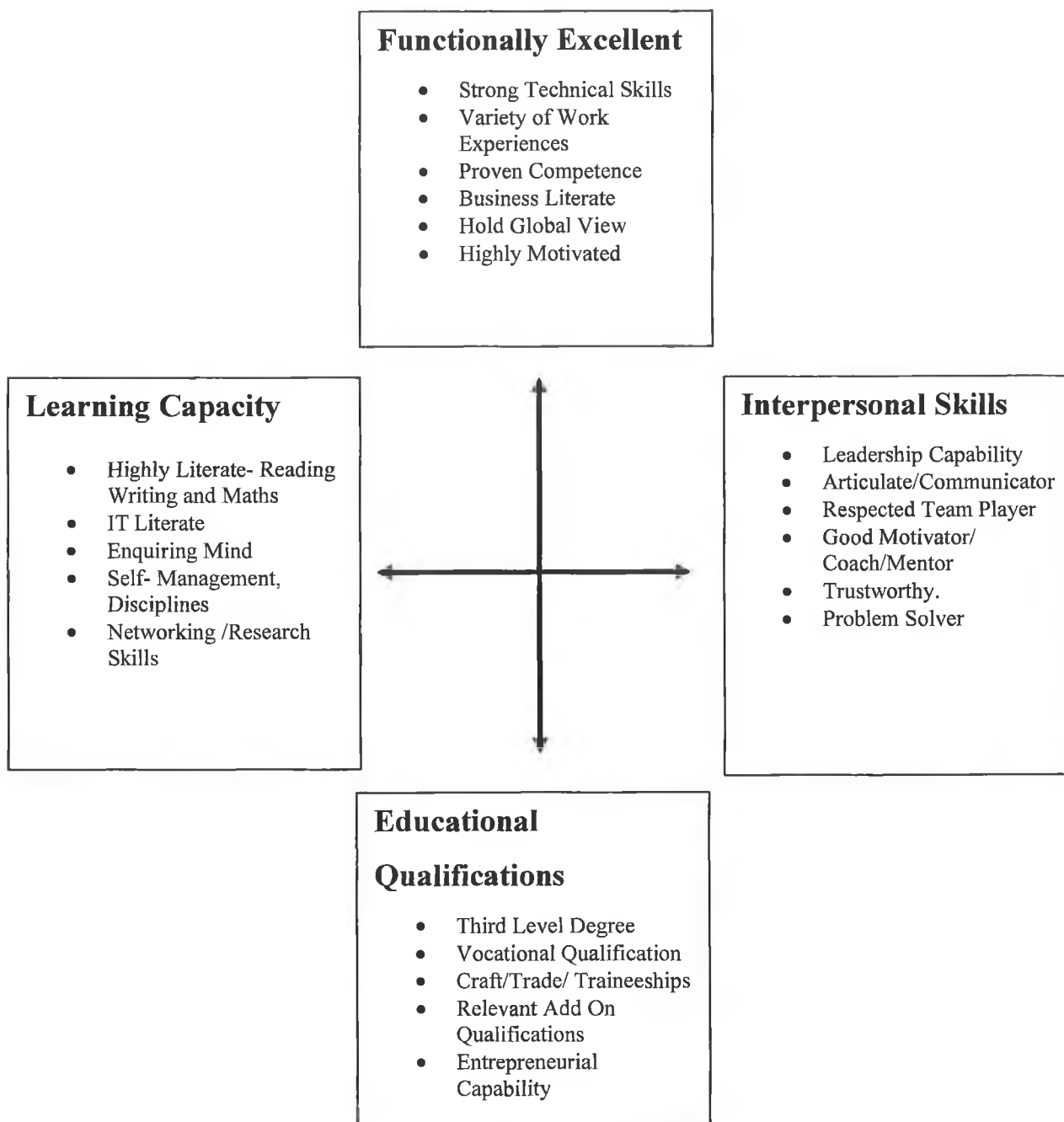


Figure 36 Key skill sets for the future -2006-2015.

Personal Transformation through Education.

The key outcome from the analysis of phases 3/4 and 5 of the research was the personal transformation that occurred. There was unanimous agreement among the participants that their educational experience had led to very positive personal and work life improvements. Figure 37 depicts the many transformations that occurred.

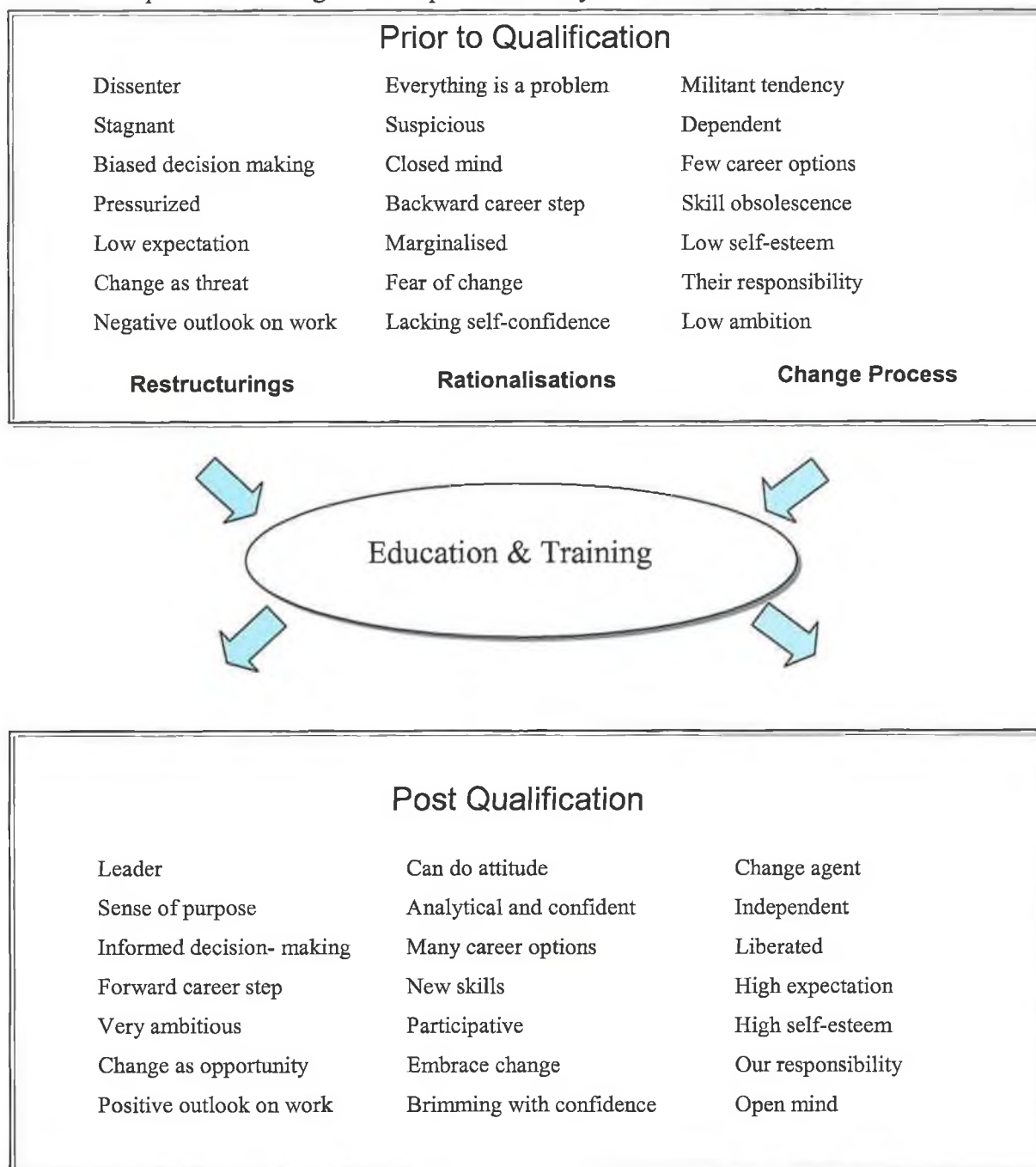


Figure 37 Education and Training is a liberating and enabling experience

Chapter 8: Findings and Conclusions.

Introduction.

A significant gap in service provision on employee education has developed. The overall findings and conclusions were drawn from the literature review, the five phases of research and the researcher's experience in addressing the needs of educationally disadvantaged employees in Waterford Crystal. The researcher was unable to locate any dedicated research reports on how best to tackle educational disadvantage in the Irish workforce despite the many references advocating action on the issue. There are short references in the White Paper on Adult Education, Enterprise Strategy Group, National Competitiveness Council, Adult Learning Council on Lifelong Learning, Higher Education Authority, FAS, ESRI, Expert Group on Future Skills Needs and a number of well known writers on the Irish economic situation.

The global influence on the Irish economy is all pervasive and Ireland is now firmly placed in the super league of trading nations. To successfully compete it requires a highly skilled and competent workforce. The educationally disadvantaged are particularly vulnerable as industry and services continues to restructure using knowledge and technology as the competitive tools. They also represent a lost opportunity as they are in work and have the capacity, if helped, to make an immediate and positive impact on economic performance.

There are sharp negative consequences for private sector business and employees that are slow to adapt. The social partnership forum has all but ignored this issue.

Emergency task group solutions are continuously employed to deal with industry closure and that is just a political response to be seen to act in a crisis. The underlying problem of educational disadvantage as outlined in this thesis has never been seriously addressed by any or all of the key stakeholder groups.

Regular announcements of high profile closures of indigenous industry throughout the 1990s to date, which have in some instances devastated small towns and communities, has not yet drawn a national response. The buoyancy of the economy overall and the capacity of redundant employees with FAS support to regain employment reasonably quickly has covered over the problem. The growth and strength of construction and services sectors have absorbed much of the surplus low skilled and educated labour.

As the research outcomes demonstrate there are many educationally disadvantaged employees who have the capacity to improve their skills and compete for the more skilled jobs coming on stream. If no remedial action is taken the problem of low skilled and vulnerable employees will become even more acute in the future as the economy continues to ramp up to higher value activities.

Currently an imbalance exists between the needs of employees and industry and the priorities of the education and training providers. Part-time education opportunities for employees are a secondary activity in many educational and training institutions. The priority responsibility of FAS and all third level colleges is not the education and training of employees and there are no other bodies around to provide it.

Neither government or education and training institutions have moved sufficiently to provide a comprehensive and attractive package for employers and employees to engage in serious education and training programmes. Participation in part-time education in Ireland remains at a very low level, 7% compared to 25% in Sweden. Of the 7% who engage the vast majority already have third level qualifications. They have the learning capacity, the funding, an appreciation of the value of education and the motivation to engage in order to advance their career prospects.

The research indicates strongly that with the wholehearted involvement of the key stakeholders an increase in the participation rates of educationally disadvantaged employees in adult education can be achieved. A dedicated body mandated to mobilise the key stakeholders is needed. All the stakeholders stand to gain from employee involvement in education and as such they should all contribute to providing access to it.

This chapter will deal with the findings and conclusions which emerged in relation to the business environment, employees/students, employers/managers, and education and training providers.

The stakeholders who gain from up-skilling employees should resource it.

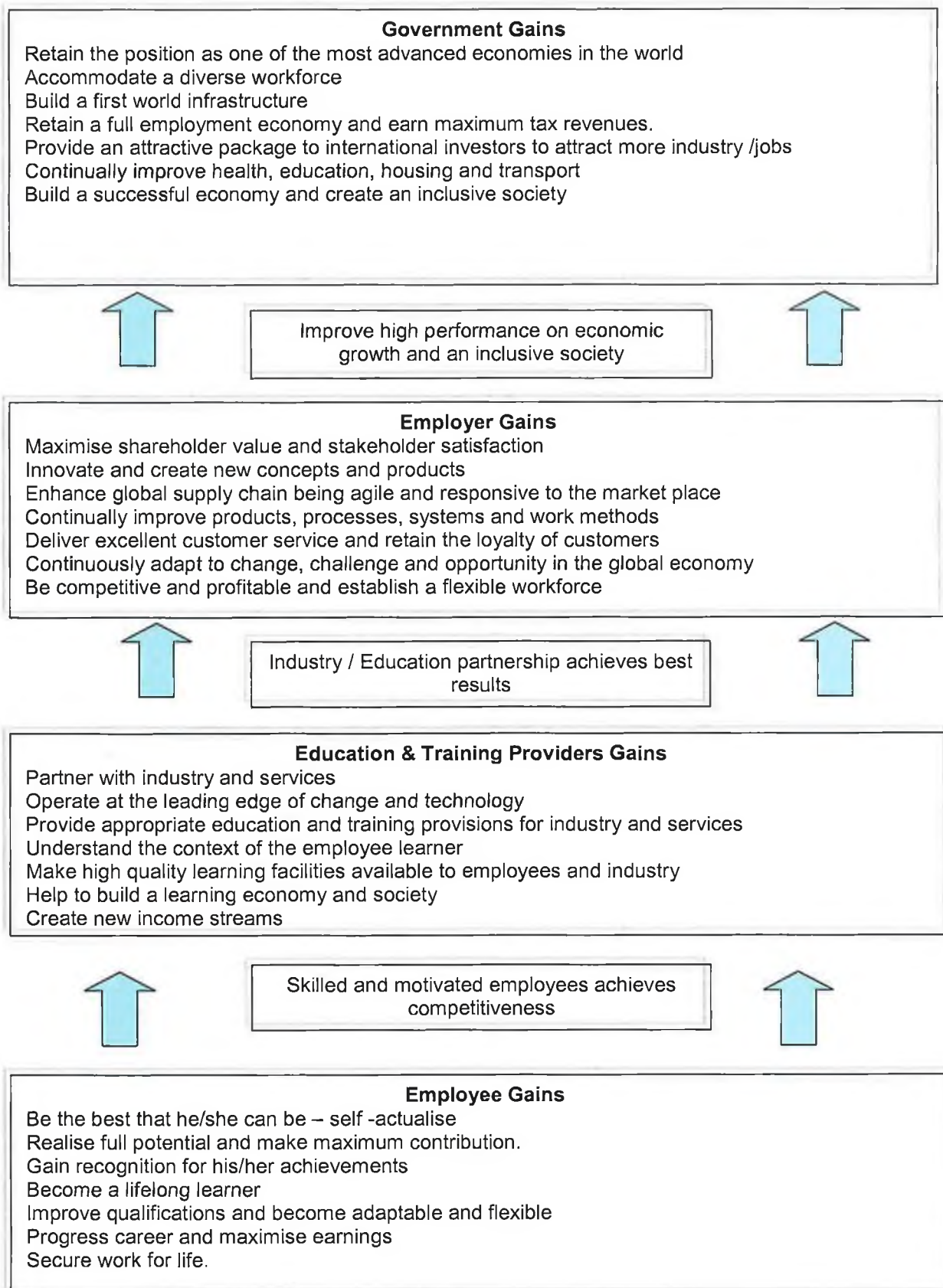


Figure 38 All stakeholders gain through employee development.

Findings:

Business Environment.

- (1) Ireland will operate in the high end of the value chain and compete against the most advanced economies in the world.
- (2) Irish workers will be expected to provide a sustainable competitive advantage in the future as the economy continues to move up into the high end of product differentiation.
- (3) Innovation, creativity and speed are three factors in which Irish business will be expected to excel in the future.
- (4) As an open economy Irish business and its workforce are more affected by global political, economic, social and technological changes.
- (5) Globalisation is expected to accelerate as more countries democratise and join the market economy.
- (6) Competition is expected to increase as companies in all parts of the world gain access to technology, knowledge and markets.
- (7) Intellectual capital will increasingly become a key source of sustainable advantage.
- (8) Low skilled job will decrease and high skilled job increase as business becomes more global and complex.
- (9) Ireland will improve its infrastructure dramatically over the next decade and will attract further high value foreign direct investment.
- (10) Employees that are skilled flexible and adaptable will more than likely be able to continuously adapt to changing circumstances.
- (11) Those on low skills will become increasingly marginalized and vulnerable in economic downturns, cycles and crises.

- (12) High skilled employment will offer more secure employment, pay better and offer better career choices and job satisfaction.
- (13) Employability requires a relevant set of qualifications and work experiences.
- (14) The most important competence is to become an independent self – learner.

Conclusion

Industrial change will continue to gather pace in Ireland and many new opportunities will come on stream for those with third level qualifications and other relevant skills and knowledge sets. The economy will continue to ramp up into a high value research, innovation driven entity. Employees will be continuously challenged to learn and adapt to changing circumstances. The global economy will provide many new opportunities for Irish business. Competitiveness and employability will be key concepts in the first half of the 21st century. The key competitive advantage will be the skills and knowledge of employees.

Employee / Student.

- (1) Employees invariably wanted to improve their skills and knowledge, perform well at work, take on additional responsibility, receive recognition and increase their earnings.
- (2) Employees who returned to education in extremely difficult circumstances were very dedicated to achieving good results.
- (3) Many employee/ students risked damage to reputation when setting out to achieve academic qualifications in what was and is a highly judgemental working environment. (Particularly relevant to front line management.)
- (4) The adult voluntary participant in part-time education was invariably highly motivated.
- (5) Employee/ students with trade union backgrounds were very capable of articulating their needs and negotiating satisfactory learning experiences.
- (6) Employee/students quickly develop a new mindset and are more likely to support change and voluntarily engage in problem solving.
- (7) As part of the learning process employee/ students become much more flexible, adaptable and interchangeable.
- (8) Many employee/students on returning to education raised their expectations around promotion, redeployment and improved wages and benefits, which were not always met in the immediate term.
- (9) A good basic education qualification is essential to facilitate entry to third level education and as preparation for training in a complex, ever changing business environment.
- (10) A good basic level of education is the basis for developing a high level of business literacy, informed decision-making and achieving personal accountability and responsibility for results.

- (11) Expected benefits have to be perceived to be greater than the pain and discomfort involved in acquiring the relevant qualifications if employees are to engage. Promotion of benefits and the provision of a visible support structure are key issues in securing this
- (12) Employees who had been institutionalised and removed from career path planning need the support of an assessment and advice service.
- (13) Employees engaged enthusiastically with customised education and training programmes designed to address their specific needs every time the opportunity was presented to them.
- (14) Employees were fully briefed on the relationship between new qualifications, career progression, and job security and remuneration levels.
- (15) Employee / students sponsored by their employer were acutely conscious of the need to achieve good results.
- (16) Prior planning, of the course between company training staff and college lecturers helped to provide a more supportive and secure learning environment for the employee.
- (17) Mentors, access to study groups, study facilities and highly competent tutors are significant factors in achieving successful outcomes.
- (18) Access to new work experiences which facilitate the transfer of learning, made a major difference to the learning, morale and motivation of many students.
- (19) The covering of fees was essential for many part-time educationalists. Many employees had suffered reductions in wages and benefits throughout the research period
- (20) The all-pervasive learning support environment created by the company attracted a large number of employees back into education.

- (21) Employees need accreditation of prior experiential learning to help them achieve a first nationally accredited certificate.
- (22) The initial discomfort experienced by employees on return to education required the most careful handling by employer and education provider. The biggest drop out rate occurred in the first three months and then after the first year.
- (23) The life and employment experience of adult students require greater levels of interaction and flexibility around design, content, delivery and support. Specialist training is required for tutors assigned to deliver education and training to employees.
- (24) The issues of employee education and training especially for those with low skills, qualifications require the combined inputs of all the stakeholders to make a return to education possible for many employees.
- (25) Employees with low formal education once having completed their first national certificate course were highly motivated to continue in education.
- (26) The more qualified and educated employees were most likely to engage in continuing education.
- (27) Successful peer engagement in education was an important element in convincing many employees of their capacity to complete a course of study. The on-going interaction and discussions cleared away many of the fears and myths associated with academia.

- (28) Employees in vulnerable employment were often forced through family circumstance to return to education and secure a viable future in work. Sometimes the success of their children in education provided the spur to re-engage in education.
- (29) A number of employees who returned to college to pursue a hobby moved on to complete more academic and vocational work related qualifications. They were motivated by peer example and the many options open to them.
- (30) In Waterford Crystal the CEO held celebratory lunches in the boardroom for groups of employee graduates. 'Crystal Clear' the in-company magazine and a highly prominent display cabinet 'A Celebration of Learning' displayed photos and stories of employee successes in education, which recognised success and encouraged others to participate.
- (31) The older employee was most likely to avoid returning to part-time education.
- (32) The number one issue denying access to education for educationally disadvantaged employees was a deep-seated lack of confidence in their ability to complete a programme.
- (33) Coping with work, family, study and funding formed an intolerable burden for many employees to carry. Employers, providers and government need to be acutely aware of this burden and make a special effort to alleviate it. See Further Research (pp397-400)
- (34) Lecturers adopting an over-academic approach can further traumatise a pressurized employee and completely undermine a fragile confidence. Some

potentially brilliant employees withdrew from courses due to lack of empathy and consideration of their position.

- (35) The most critical relationship in the adult learning context is that between student and tutor, even more critical than manager /employee. Competent and empathetic tutors make major difference to the confidence and performance levels of employee/students.
- (36) Educationally disadvantaged front line managers promoted on their outstanding technical skills and work ethic are under pressure to deliver good results in order to retain their credibility and reputation in the new workplace which includes an increasing number of graduates at all management levels.
- (37) Many employee/students returned to education due to fear of company closure, redundancy, of being left behind, unemployed, of failure, of facing long-term disadvantage and a lack of personal fulfilment. A major driving force for employees was the need to save their careers.
- (38) Fear of failure on returning to education was a strong motivational factor as any demonstration of inadequacy represented a negative rating of suitability for advancement in the workplace.
- (39) The 'first step 'back to education proved by far to be the most difficult and problematic for many employees.

- (40) Maths proved to be a difficult subject for many employees and they had to organise special grinds and study groups to help them to get through it.
- (41) In general employee/students found it extremely difficult to fund costly nationally accredited courses over a number of years while working and studying. Paying fees was a burden too heavy for many employees in particular the low skilled and paid.
- (42) A cultural divide exists between education and enterprise that needs to be studied to facilitate a best practice approach to educating employees. A real partnership on addressing the needs of educationally disadvantaged employees is an objective worth pursuing.
- (43) As the independent, resourceful employee from industry moves into a dependent academic relationship it is a difficult task to form the basis of a productive relationship.
- (44) Extended periods of listening and reflecting in the classroom tests the discipline and patience of employees more used to action oriented activities. Customised programmes with interactive and delivery methodologies would improve the educational experience for employee students.
- (45) Adult education at national level is currently fragmented, under funded and neglected in terms of resources, accountability and the application of quality standards.
- (46) Many employees who had not completed their Leaving Certificate regretted it and were very frustrated by how it had reduced their career prospects.

- (47) Employees who had rejected a number of voluntary parting packages were highly focused on building a new career through education and training.
- (48) Having successfully completed the course, general regret was expressed on not having returned to college sooner. Their educational experience was invariably both career and life changing.
- (49) Employee/ students on completing a nationally accredited course were most amenable to the negotiation of cost improvements and change initiatives in work.
- (50) The successful completion of exams represented a huge personal transformational experience of life, career-changing proportions for many employees.
- (51) Employees with high aptitudes were extremely successful in education. Some of the results were phenomenal and inspiring. Many successful employees were promoted to management and others gained high paid employment externally.
- (52) Many employees on completing exams were employed as change agents, training instructors, IT champions, team briefers, first-aid personnel, emergency response team members, process improvement project participants. They were also successful in competing for higher skilled job vacancies.
- (53) Both company and employees gained from improved qualifications. Employees were enabled to move from areas of surplus – craft to areas of skill shortage –

technology. This seamless transfer eliminated the high costs associated with craft redundancy and the recruitment of technicians while retaining the glass making experience and tacit knowledge of loyal and committed employees.

- (54) The company's employees participated with others who had to self-fund their education which helped temper more militant attitudes to change.
- (55) Employees with access to the same information and understanding of competitive issues as management invariably came to the same conclusion on what needed to be done.
- (56) The open sharing of information helped create an informed, mature and respectful employee relations climate, which enabled a shared understanding of the key business issues of the day.
- (57) Many successful students were invited to participate in project teams. Through them they were introduced to many new issues, problems and concepts. Their competence increased by engaging in a wider mix of management disciplines.
- (58) Research from the National College of Ireland (2004) pointed out that employee students who applied generally knew what they wanted, experienced little self-doubt and fully appreciated the value and benefit of education. All studies carried out on adult education shows that the majority of adult students have secondary and third level education and are more likely to be eligible, informed and focused in contrast to educationally disadvantaged employees.
- (59) The current cohort of experienced employees with uncertified skills, represent a great opportunity for government and the economy. The redeployment of surplus

low skilled employees into new skilled job vacancies over the coming decade is a worthwhile goal.

(60) Employee/students broadened their views through the sharing ideas, information and experiences with employees from a wide range of private and public employments in the region while in college.

(61) The most important benefit for employees was the major boost to confidence and self-esteem on receipt of their first national certificate. Graduation was an occasion of great joy and celebration for employee, family and working colleagues.

Conclusion

There is a well of evidence to support the view that many educationally disadvantaged will participate in redeeming their educational deficit if the right environment is provided for them to return to education and training. There is growing awareness among employees that their long- term future at work is increasingly dependent on acquiring the relevant qualifications appropriate to their work interests and personal aptitudes. Future job security in the knowledge economy is dependent on retaining a level of employability required by industry and services. Every employee has the potential to acquire a qualification even a minimum qualification. The lack of leadership, priority, cohesion and focus among the stakeholder group is blocking their way. There is need to appoint a coordinating body with sufficient influence to pull all the stakeholders and resources together in support of a national education and training plan for employees in particular for those that are educationally disadvantaged.

Employer / Manager

- (1) The company's sponsorship of education for both employees and family members helped create a learning culture. Executive management leadership and support enabled middle and front line managers to facilitate widespread participation in part-time education. Taking their cue from executive management they provided flexible arrangements on time off to attend classes, to study, completes exams and where possible provide them with new work experiences involving the new skills acquired.
- (2) The company's select education support schemes were hugely important in promoting involvement in education and training. They were tangible evidence of executive management's commitment.
- (3) The third level interest free loan scheme for children of employees helped remove the crutch and expectation of continuing generational employment in the company and directed employees to examine their own qualifications.
- (4) The company paid fees and provided a range of resources up front. A 98% success rate was recorded due to the support structure provided. Only those with valid health, work or family circumstance withdrew from the courses or failed exams. Many companies (Appendix G pp388-391) do not support employees with funding.
- (5) A critical support was the provision of access to professional assessment and advice from the local institute's Regional Education Guidance Service as it gave

the employees new insights into their potential prior to starting out on a course of study. The training team continually gave advice on course choice.

- (6) The development by the company of an unwritten psychological contract including open access to education and training for co-operation on change was a key contributor to facilitating participation in education and training.
- (7) Challenging employees to take responsibility for their own development in the context of a supportive learning environment was a key strategy sponsored by executive management.
- (8) In placing responsibility for involvement in non -mandatory education and training programmes on individual employees only the most determined opted to engage with outstanding results.
- (9) Pilot measures proved most successful in attracting disadvantaged employees to education.
- (10) In-house study groups played a central role in supporting the employee/student in college. For many, it was the most important support of all in their return to education experience.
- (11) An all-pervasive learning culture was created through the company funding and promoting participation in education and where possible providing new

opportunities for the transfer of learning through selection on project and problem solving teams.

- (12) The new learning culture, which encouraged so many employees to participate against the odds, was helped by the commitment of executive management who went to extreme lengths to recognise achievements. Celebrations were organised to mark employee successes. Many of them were promoted on completion of courses.
- (13) Executive management outlined the personal and business reasons for participation in education to the entire workforce face to face and through print and electronic media. Employees were left under no illusion as to the importance of better qualifications.
- (14) What gets measured gets done! Executive management reviewed results on a quarterly basis once they had signed off on plans and expenditure at the beginning of the year. This all-pervasive interest in promoting education seeped into the mindset of the employee creating a new urgency around up-skilling, multi-skilling and qualifications.
- (15) The executive team were critical persuaders and exemplars in promoting the importance of education and training in securing the viability of the business. Across the company, in every function, key managers responded and supported their teams, achieving maximum participation and recording outstanding results.

- (16) A learning organisation was established providing formal and informal learning programmes and a multitude of other learning opportunities across all functions and disciplines. State of the art facilities, trainers, pioneers, champions, education support schemes for employees and families, awareness campaigns, reports, artefacts and symbols combined to engage every category of employee in the learning process.
- (17) A business led employee centred, learning friendly environment won over the most sceptical and fearful employees. Once they chose to engage every effort was made to retain them by and successfully walking them through their first course and qualification.
- (18) The commitment by executive management to recruit and promote from within on the basis of suitability provided a huge boost for a return to education. All internal applications were exhausted first prior to sourcing from the outside and hundreds of employees progressed in the company as a result of new education qualifications.
- (19) There was a clear understanding that employees were not entitled to automatic promotion or advancement or returning to education. It was widely understood that employees with relevant qualifications were much better placed to compete successfully for the new jobs.
- (20) An in –company task group on competitiveness involving management and union representatives set up in 1993 provided a forum for open discussions on key

competitive issues. The information shared at this forum challenged employees to return to education, participate in problem solving and resolve many difficult issues at source. A stable employee relation's environment, which had changed from adversarial to collaborative by the mid 1990s, aided the communications process on education and training.

- (21) Education, training and communications programmes played a major role in maturing the industrial relations climate within the company through building a common understanding and appreciation of key business issues.
- (22) As the education levels of shop floor employees advanced a greater understanding of the issues facing the business grew. The different functions and employee categories engaged directly on competitiveness and employability. A better appreciation of how systems and processes interacted led to greater collaboration all round. The concept of the internal customer within the supply chain helped develop a much more customer responsive and agile organisation.
- (23) As the business results began to deteriorate from 2002 onwards an immediate reduction in training spend, facilities and resources was implemented.
- (24) In the most difficult times in the early 1990's an executive decision was made to invest heavily in education, training and communications to assist the transformation process.
- (25) Management teams have different views on the contribution and value of education and training. The availability of training resources depends on the

outlook of human resources director and executive management team and that is open to continuous change as management personnel change.

- (26) Since the downturn in 2002 education and training resources and budgets have been slashed as part of company-wide cost reduction initiatives.
- (27) The employee education and training budget is regarded as a discretionary spend.
- (28) In difficult times managers under pressure will not free up employees for on and off the job training. Attitudes of managers are critical to accommodating education and training needs of employees in private industry and services.
- (29) The provision of education and training in industry is often job centred only and does not facilitate the broader educational needs of employees operating in a continuous change environment.
- (30) There is no national safety net through which employees can access education and training regardless of circumstance.

Conclusion:

The level of access to education and training for employees varies with individual employers, current performance of the company and the priority placed on it by executive management, more particularly the human resources function. There are many contradictory forces at play in organisations that hinder access. The structure of enterprise in Ireland does not lend itself to wide scale involvement in employee education. The global multi-national corporations have a good record in providing education and training opportunity on a continuous basis for employees. Overall the provision is uneven and priority is placed on production, quality and customer service and training on job and business related skills only. The long term needs of the economy are not ever a consideration for individual enterprises either large or small.

Education / Training Providers.

- (1) The involvement of education and training providers in the development of employee capability company wide in the 1990-2006 period was a critical factor in the success of the programme.
- (2) Education and training providers have the expertise to provide the relevant accredited up-skilling and education programmes. This expertise and resource is not available in industry.
- (3) Skillnets, Enterprise Ireland and FAS provide support to small and medium enterprises on application and invitation. A stronger commitment to employees in SMEs is required to facilitate their engagement in education and training.
- (4) Course content, lecturing styles, course materials and empathy with employee background and needs were regular areas of contention that arose between employers and education providers throughout the period 1990-2006. There were many setbacks recorded along the way.
- (5) The quality, experience and preparedness of the lecturer was a critical factor in retaining the interest of the employee and in ensuring eventual success.
- (6) The adult education system provides a very limited curriculum in restricted geographical settings. Travel was a key issue for many who returned to part – time education. Many relevant courses were unavailable in the region.

- (7) Accredited courses from introductory to masters degree in science, logistics, sales & marketing, education and training, human resources, leadership, counselling, professional development, construction, teaching are very difficult to access.
- (8) Cultural and class differences exist between education and industry which hamper the solution to the problem of educational disadvantage.
- (9) The many differences between education and industry are manifested in levels of misunderstanding, levels of concern, urgency, flexibility, adaptability, empathy, leadership, learner centeredness, relevance of materials, acknowledgement of time as a cost, appreciation of employee problems and the customisation of the learning experience.
- (10) The removal of class barriers between education and enterprise in accommodating educationally disadvantaged employees needs further research and action. A cultural and class gap exists which is complex in nature, difficult to analyse and articulate and is holding back the development of integrated solutions to employers and employees.
- (11) Education and training providers offer mainly off the shelf courses to already educated employees. The findings indicate that a more sophisticated set of customised educational offerings are needed to satisfy the needs of employees who are low qualified and have been out of the education system for many years.

- (12) There is a huge bank of expensive resources lying idle throughout the year in third level institutions and state training organisations that if activated would make a major difference to employees
- (13) An independent auditing body should be appointed to evaluate the annual performance of education and training institutions on employee development.
- (14) Participation rates, success and failure rates should be recorded and evaluated. A continuous improvement process should be established. The percentage completion rate and overall quality of provision should form part of the criteria in funding future employee development programmes by government.
- (15) Many providers offer employees standard prospectus that do not address the specific needs of employees who constitute specific and potentially large sections of the part-time adult students.
- (16) Two government departments, the Department of Education & Science and Department of Enterprise, Trade & Employment make holistic and integrated solutions difficult to achieve.
- (17) Clearly defined progression routes through the FETAC/HETAC system is required for the maximum number of employment disciplines and sectors (from primary certificate to doctorate level)

- (18) The accreditation of prior experiential learning, the availability of introductory courses, mentors and system of accountability to student and company are areas needing immediate attention.
- (19) Many development options are needed to accommodate the various interests and the multiple range of intelligences of employees. FAS, WIT and the VEC in general offer a limited range of qualifications and traineeships relative to the range of interests and intelligences.
- (20) The education system needs to provide bridging programmes given due accreditation for previous experience and learning and entry to customised programmes taking employees to the next level of qualification.
- (21) A basic secondary level of education is required to establish a satisfactory level of trainability required to master new technologies, processes, systems, products, work methods and organisation structures.
- (22) Further research is needed into how employees learn and the most appropriate approach to providing them with educational opportunity taking account of their circumstances and needs.
- (23) A range of alternatives to the Leaving Certificate is needed to attract a wide cohort of employees working in the different employment sectors

- (24) The co-ordination of provider resources is urgently needed if maximum success rates are to be achieved.
- (25) The UCD Horizon programme in which students can select modules from a range of degree courses to complete a relevant primary degree more suited to their needs and that of industry is a concept of great value to employees today. The range of skills needed by employees in the new work organisation invariably cross several disciplines.
- (26) Education and training institutions need to establish more flexible delivery methodologies to accommodate shift, seasonal, contract and full-time workers who are continuously on the move.
- (27) The main third level education institutions need to establish dedicated units to liaise with business and monitor changes in the global and national economies. As the change process in business gathers pace a more dedicated approach to providing focused educational provisions is required.
- (28) Many education and training institutions have a "Continuing and Adult Education Department" which needs to be partnered with an Education Service to Business Department if the needs of industry and employees are to be met.

- (29) Accreditation of prior experiential learning is essential to help low qualified employees access and complete a third level programme as first step for employees needing to gain higher level qualifications.
- (30) In developing appropriate education and training programmes the delivery process requires a deep understanding of the aspirations and the motivation that drives employee students to want to participate.
- (31) The provision of employee centred education that acknowledges fully their circumstances, fears and difficulties is essential if the vast majority of employees are to return to education and retain their jobs or find new work in the event of redundancy.
- (32) It is important that education and training providers provide a strong network of support for employees completing their first course on their return to education.
- (33) Education is the more critical need for educationally disadvantaged employees in the current knowledge, technology based economy. Training is much more accessible to all categories of employees in work and from their employers and public and private training institutions.

Conclusion

The primary objective of state education and training providers are full time students and the unemployed. There is little evidence to suggest that any major change has taken place in regard to employee education and training. There is a dearth of research on the education of employees working in a knowledge economy and how best they can be supported. At the same time it is clear that education and training institutions have the resources and expertise to make a huge difference to the skill base of the economy. There is also evidence of fragmentation and duplication of resources at state level that could be much better employed if co-ordinated under one body with the influence to do so. There is a gap apparent between the expertise and resources of education and the needs of employees and industry that needs to be addressed. A meeting of minds between education and industry on the issue of employee education and training would revolutionise the skill base of the workforce in particular of the educationally disadvantaged.

Government / Departments /Agencies

- (1) The success of the government's strategy on industrial development has created the need for a comprehensive and urgent examination of the needs of education and training needs of employees at this time.
- (2) Employee skills and knowledge is gradually becoming the petrol in the engine for economic growth in the knowledge economy as it moves up the value chain and depends on innovation and knowledge to sustain it.
- (3) In the new work organisation, education and training were found to be two sides of the same coin. Training needs education and education needs training in developing the flexible and adaptable employee. Government agencies need to restructure and provide employee centred learning opportunities in responding to this new phenomenon
- (4) The Department of Enterprise, Trade & Employment has sponsored EU Human Resource Development Project, Skillnets Programmes, and In-Company Training Programmes piloting many innovative employee up-skilling measures between 1990-2006. The mainstreaming of the most valuable products was the least effective part of the overall programme.
- (5) Education and training was the adopted mechanism in transforming the skill base of employees in Waterford between 1990 and 2006 as the research outcomes confirm. The Department of Education and Science through the institute of technology sector

played an important role in addressing education deficits ably assisted by FAS the VEC and other agencies and third level institutions countrywide.

- (6) Government is best placed to co-ordinate industry, education and training resources to facilitate educationally disadvantaged who hold little influence with the policy makers and leaders of industry and education.
- (7) The many blockages to education for employees at employee, employer, and training provider and government levels can be removed if government takes the lead in co-ordinating available resources.
- (8) The government has to view the national workforce as a unit employed by Ireland Inc if the best strategic options and decisions are to be taken.
- (9) Accredited education interventions for employees are a national responsibility and require global intelligence and feedback to retain global competitive relevance.
- (10) Employees in the private sector of the new economy will work in a variety of employments throughout their working lives and few individual organisations will commit to providing sufficient educational opportunity to satisfy their long term needs.
- (11) The structure of business organisations nationally reduces the opportunity for employee involvement in continuing education in particular educationally disadvantaged employees. Ninety five per cent of private sector companies are

small (under 50 employees) and do not have the resources, incentive or inclination to provide continuous access to education for staff.

(12) Government is uniquely placed and has to hand the resources to analyse and interpret developments and trends on the future skills needs of the economy. Individual employees are depending on a higher power than their immediate employer to provide them with the educational opportunities they need.

(13) The government should provide the resources to develop a minimum set of qualifications to correspond to the minimum wage standard. In this way employees would develop the capacity to engage in continuing education and learning throughout their working lives while improving their wage and benefits packages.

(14) Increases in Departments of Education & Science and Enterprise, Trade & Employment budgets have led to many improvements in education and in employment with the outstanding exception of the provision of access to education and training for educationally disadvantaged employees facing continuous change in high value employment.

(15) Government and their education and training agencies have responded too slowly to the plight of educationally disadvantaged employees and are well behind the speed of change that private sector industry and services requires.

(16) Private industry's core mission does not include the education and training of its employees. In many instances it represents a peripheral activity and an additional cost in the restructuring and reengineering of functions, processes and jobs.

(17) There is no one agency dedicated to addressing and co-ordinating the up-skilling of educationally disadvantaged employees facing deep and continuous change in industry and services. The growing sophistication of jobs, processes, systems and products makes it mandatory for employees to return to education and training. Otherwise they will continue to live and work in a world that no longer exists.

(18) FAS continue to meet their obligations to the unemployed and apprenticeship training along with other more social, community focused responsibilities. Expenditure on training for people in work has changed little in the period under review 1990-2006 despite a massive increase in employment and a sharp decrease in unemployment.

(19) A new co-ordinating body capable of bringing all the relevant parties together is needed to address the education and training needs of educationally disadvantaged employees.

(20) The National Qualifications Authority FETAC/HETAC System is hugely important in providing new educational and training opportunities for the widest possible category of employee and employer needs. Its development throughout the period 1990-2006 while welcome has been painfully slow.

- (21) Government departments and agencies have produced many reports strongly recommending immediate action on employee up-skilling with little success of note in increasing the level of participation in adult education.
- (22) The Department of Enterprise, Trade & Employment has comprehensively tackled the barriers to participation in adult education and training for employees. FAS have moved slowly to address some of the identified needs of employees.
- (23) Much has been written by government departments and agencies about the growing vulnerability of educationally disadvantaged employees as old industries close and is replaced with new industries providing mainly skilled jobs.
- (24) Unless government takes a lead responsibility for the up-skilling of the national workforce there will be little significant advancement in employee education and training.
- (25) Social Partnership achieved many valuable improvements in employee welfare without advancing their capacity to develop their skills and qualifications. The old adage of teaching a man/woman how to fish rather than giving a fish has been ignored in successive social partnerships agreements.
- (26) There was little research undertaken on the specific needs of educationally disadvantaged employees despite the many official reports and references to their vulnerability and dormant potential between 1990-2006. It is now time to sponsor a national education and training initiative to address the needs of the educationally

disadvantaged and release their potential to boost the economy over the next decade.

(27) The IDA promotes Ireland under the marketing theme, 'Knowledge is in our Nature' and the 'Irish Mind' without any corresponding comprehensive national investment or focus on the improving the skills and knowledge base of employees.

(28) Forfas and the Expert Group on Future Skills Needs set up in 1998 is currently focusing on identifying the needs of all categories of employees as part preparation of a new national skills strategy.

Conclusion

It is clearly apparent that given the government's decision to compete at the high technology, knowledge driven end of the global economy with all other advanced countries, the speed and depth of change and the serious educational anomalies and gaps in workforce qualifications the government has to intervene at least for a ten-year period to eradicate the current educational disadvantage from the workforce. The need is there, the resources are there and the competitive health of the economy is depending on government putting these resources to work for the benefit of the economy and society. Government can best mobilise these resources and provide the necessary leadership and direction to the main stakeholders, employers, providers and employees to overcome the barriers and eliminate this 'once off' educational deficit.

Key Conclusion - Government intervention is urgently required.

If the education and training of educationally disadvantaged employees is to be addressed in a comprehensive manner then the many and varied education and training services available will have to be co-ordinated, reorganised and activated. The vast majority of employees, in particular the educationally disadvantaged, those on shift-work, contract and seasonal workers in shops, hotels, restaurants, pubs, construction, industry and services require a flexible and responsive service. There are some complex underlying cultural issues to be sorted out between education and training institutions if a more cohesive and effective approach is to be established. See key conclusion (pp344, 345 and 346).

Research statistics inform us that only 7% of employees currently participate in adult education. Participation depends on a number of factors in particular the immediate approach taken by their employers to their development needs. This approach is often influenced by such factors such as:

- The extent of education and training institutional collaboration.
- Size, strength of company and current profit performance.
- Type of business. If heavily regulated, fast changing, knowledge based or / and research oriented, the need for continuous training and high skills will need to be part of the enabling strategy.
- Attitude of executive management to education and training.
- Employee relation's culture in the company (participative/ adversarial/non union).
- Style of management- results through people, respect for people, people as a cost.

- Performance of company- growth strategy.
- Level of investment in education and training.
- Attitude of human resources director.
- Need for employee development- change process and new strategies and plans.
- Changing business environment- level of competition.
- Availability of development programmes – proximity to third level institution.
- Retention of employee once qualified- employee more attractive to external employers.
- Perception that education as distinct from training is an unaffordable luxury.
Company will only pay for direct job related training to keep the performance level up in the immediate.
- The willingness of educationalists to empathise with employees and go the extra mile in redeeming their deficit.

Employee constraints include:

- Lack of confidence.
- Cost of education.
- Time off from work.
- Cover for absence.
- Learning difficulties.
- Low formal level of education. Poor previous educational experience.
- Company focus on current job skills training only.
- Concession of recreation and family time.
- Family responsibilities come first.

- Work responsibilities and pressure.
- Distance from education centre.
- Fear of failure.
- Lack of incentive, no guarantees on future progress at work.
- Access to suitable courses.
- Access to assessment re options and progression routes.
- Employer attitude.
- Government attitude and support.
- Education and training provider attitudes to educationally disadvantaged employees- lost cause!

Management attitudes on the ground can vary along the following lines:

- We must achieve our targets first and foremost!
- We can't afford the time involved!
- The skills required can be learned on the job!
- There is nothing to beat actual experience!
- 'Time is money' we can't afford the time and cost!
- They don't need it!
- We don't need better-educated employees!
- We will complete the mandatory training element only!
- We are creating competition for our own positions!
- It is critical to improve the skill base to secure the future!
- We can't move forward without substantial investment in education and training!
- We will try and work out a compromise package!

- A qualified employee will be much easier to manage and appreciate the need for change. We will not be able to satisfy the expectations of a more qualified person!
- ◆ A qualified employee will be more difficult to manage!
- We can't afford not to train our employees!
- We hire competent people to do the job, why do we have to train them!
- We can't afford to train them for someone else!
- It is their future! It is up to employees to upgrade their skills in their own time and at their own expense!
- We can never quantify the actual return we get from investment in education and training!
- If we think that training is expensive, ignorance will cost us more!

All of these conflicting positions and more are fluctuating throughout the stakeholder groups many of which are preventing employees from accessing the very necessary education and training they need to perform in work. Many of the barriers are created by the stakeholder groups. There are more negative than positive forces at play, as in many cases it is much easier and less expensive to do nothing. Recent research from government agencies indicate that negative forces are in control as the vast majority of employees are not provided with regular education and training opportunities.

There is an urgent need for the government to take control and responsibility and appoint a single lead body, 'National Employee Development Council' to co-ordinate the many resources available to educate and train employees. The time to act is now!

Chapter 9. Recommendations, Rationales and Further

Research.

Introduction.

The findings and conclusions lead into the recommendations that combine to construct a national learning environment that will eliminate educational disadvantage in the workplace. The best way to do this is to create a learning economy that provides in a wide range of ways learning opportunities and incentives to the 600,000 who need it to operate successfully in the knowledge economy. Learning interaction between home, workplace, community and classroom is most likely to engage the majority of disadvantaged employees in lifelong learning through a variety of formats.

This holistic approach of creating a learning culture will permeate every aspect of the lives of the educationally disadvantaged. The many tangible and intangible incentives available in employment, social, recreational situations will draw them into participating. The evidence (see Appendix B pp 2-325) indicates that if the first step/course is taken, successful employee students are very likely to continue on in education until they reach their ultimate goal.

The strategy adopted in Waterford Crystal was to build a framework (learning organisation) to accommodate a diverse set of learning needs and reasons. As the new workplace challenged employees with new concepts, technologies and job opportunities the trickle turned into a flood of participation. Executive management committed to providing a supportive environment but apart from the mandatory training needs they provided the space for employees to make up their own minds on what, when and how they were going to redeem their educational deficit. Employees

were saturated with information on the new skills needed as job specifications changed, the concept of employability and the multi-skilled portfolio, the value of new educational qualifications and the benefit of alternative skills and career options as old jobs and skills became redundant.

As the education and training needs of individual employees increased there was a major increase in 'voluntary' engagement in education and training for a myriad of reasons. This same engagement strategy holds for generating interest in education among the 600,000 educationally disadvantaged in the economy today. The first step is decide on a strategy, establish a structure to deliver on it and through a skilled awareness campaign set the reflective process in motion among the educationally disadvantaged.

Employers, trade unions, providers and the public at large should be mobilised through advertising campaigns to encourage participation. The recommendations are framed to establish a learning economy that will engage the educationally disadvantaged in a lifelong learning experience that will benefit them and the economy (employer, government and society). There is need to design and install a subtle push, pull system to operate to ensure that the implications of knowledge based qualifications seeps through the consciousness of the low formally educated employee. Education can become an irresistible force tempting many employees to redeem education which is holding them back in their work. Knowles et al. (1998 p144) state that 'adults generally become ready to learn when their life situation creates a need to know. It then follows that the more adult learning professionals can

anticipate and understand adults' life situation and readiness for learning the more effective they can be'.

The national workforce is made up of a diverse group of individuals with different aptitudes, work interests, needs and aspirations. The industrial and service base of the economy is equally diverse in structure and operating principles and practices. The key underlining issue is a basic Leaving Certificate standard of education as it forms the basis for creating the independent learner and training in higher order skills concepts and techniques.

A future of challenge and promise for an educated workforce.

The IDA has promoted worldwide the flexibility and creativity of the workforce as the key attraction for international investors. To date they have attracted leading global brands in financial services, electronics, pharmaceuticals and information technology to Ireland over the past twenty years. In 2002 they launched a very successful international marketing campaign for foreign direct investment using 'knowledge is in our nature' as the theme. In IDA Ireland, Annual Report 2005 Press Statement (25th May 2006) they announced their intention to build on this theme basing future advertising campaigns on the 'The Irish Mind' as a strategy to differentiate Ireland from other leading economies in competing for foreign direct investment.

Dorgan, (2006,p2) CEO of IDA explains 'Over recent years we have seen clearly the extent of change in global business and the opening up of new competing location for investment. These factors have created challenges for Ireland, which we have successfully met. But we have to keep moving on, and differentiate Ireland for high value investments'

‘What is different here in Ireland is the way in which we tackle issues, solve problems and see other new and better ways to meet needs. It requires ambition, vision, cooperation and partnership among many players. It reflects a mindset and an approach that is innate. Ireland continues to win international investments because it is recognised as a business location where the workforce, in addition to being highly qualified, *has a unique capacity to improve, to innovate and to initiate new ideas, new processes and new methods of operating that can make business more dynamic, more efficient and ultimately more profitable*’, says Mr Dorgan.

Molumby, (2006, p3) Executive Director Marketing of IDA, elaborated, ‘Innovation and creativity are pre-requisites for success amongst global companies today. They want to locate the crucial parts of their business in a society where these attributes flourish and the Ireland of 2006 is meeting this need. *Ireland has an established reputation based on our flexibility, speed, agility and willingness to succeed.* These are the distinctive characteristics which distinguish Ireland from global competitors for foreign direct investment.’

In order to deliver on this promise it is absolutely vital that the skills of the workforce are raised to a new level with every employee taking a ‘one step up’ in their qualifications as recommended by the Enterprise Strategy Group in 2004. An Taoiseach (May, 2005 p11) in ‘Inside Government’ and in reference to the Forum on the Workplace of the Future stated ‘*we must put the same energy and investment in developing the skills of the employees as we have put into the IDAs drive to attract in high quality business into the country*’. All the evidence gathered throughout the

study support the need for a radical departure in addressing the needs of the educationally disadvantaged. . There are eighteen recommendations offering best practice approaches to redeeming this education deficit. The overall prize includes facilitating educationally disadvantaged employees to seamlessly transition from:

- Redundancy to new higher - skilled jobs coming on stream.
- Replacing obsolete skills with new relevant skills sets.
- Raising their capacity to adapt in line with the increasing complexity of jobs, processes and systems.
- Increasing productivity, quality, customer service and cost effectiveness at plant and national levels.
- Securing employability status for them in the new economy.
- Enhancing the reputation of Ireland as a location for higher value business operations.
- Developing a more equitable and inclusive society.
- Building a competitive commercial base to secure future prosperity.

The recommendations include four major initiatives and fourteen support initiatives needed to build the framework for participation. Creating a culture of learning will attract all categories of employees into a lifelong learning mode. Opportunities and reasons to learn will integrate into the workplace, community and classroom. The greater the spread of learning opportunities the greater the number of entry points and diversity of learners registering. The education system will become a high powered recruitment agency offering solutions to work and life crises for all categories of disadvantaged employees across a multiple range of intelligences. As Rogers (1961) and Maslow (1985) have indicated it is the natural inclination of the human being to

want to improve and progress in life and in work. There were never more reasons for wanting to improve and progress in work and life in this age of limitless opportunity for the educated and trained. The evidence often summarized in figures, findings and conclusions of the study provide the basis for the recommendations. See (pp308-347)

Recommendations

- (1) A comprehensive set of educational and training provisions with the appropriate support structures should be provided free to all categories of educationally disadvantaged employees across all sectors of the economy up to FETAC level 5 (Leaving Certificate equivalent).**

Rationale: All the evidence suggests that a special effort is required to deal with the issue of educational disadvantage. An Taoiseach (p9), 'How we unlock the talent and creativity of our employees is the crucial issue of our time' (Figure 2 p13), outlines how environmental change is driving organisational change and requiring skilled and competent employees to adapt and manage it. (Figure3 p14), shows how the new work organisation has changed dramatically in recent times. It has become a network of collaboration in which every employee's contribution is greater and more transparent. (Figure 4 p18), makes the case that all of today's jobs in the Irish economy are skilled. (Figure 6 p24), using Handy's sigmoid curve concept points out that there is no time to lose given that the resources are available to make the investment. Finally (Fig 7 p28) highlights the creation of a virtuous cycle created through investment in employee education and training which includes the strong added value effect across the economy and society.

The conclusions (pp308-343) and the key conclusion pp344-347) indicate the potential that is available to be tapped once the many barriers are removed and the employees engage in education. Figure 39 p388 is the template proposed for maximising participation in education among the educationally disadvantaged. As pointed out in Chapter 5 pp193-197 the special internal programmes organised to address specific educational disadvantage achieved outstanding success. The special focus on removing the barriers in consultation with the targeted participants proved to be the best approach. This collaborative approach between stakeholder and learner was proved effective through the EU / government sponsored initiatives (pp200-208). The consortiums involved designed, implemented and monitored programmes aimed specifically at addressing the needs of disadvantaged employees. The programmes were tweaked to accommodate employees and large numbers achieved relevant qualifications through them. Disadvantaged employees are willing and anxious to participate in up-skilling for new qualifications if the right environment is created for them.

The National Qualifications Authority of Ireland (NQAI) have established a system of accreditation that enables mature employees from primary certificate level to re-enter the system and progress their education in line with their ambition and capability. For those with low formal education and low skills access to the level 6 on the FETAC ladder should be provided free to employees. (See Figure 10, p 124 and Figure 11, p125) that outline the scale of the disadvantage that exists in Irish society and the economy today.

Figure 38 (p 311) outlines the series of steps to be taken and the supports required if educationally disadvantaged employees are to be moved to engage in redeeming their educational deficit. The educationally disadvantaged are the least likely to participate in part-time education or in any difficult course of training and study. Their earlier education and economic circumstance often negatively dictated their choice of career. It was often set from a very early age. Changing this perception of their capacity to achieve a new academic or vocational/technical/craft based qualification is possible if a friendly student centred support structure is made available to them.

Appendix B (pp2-325) includes 112 profiles of employees who re-engaged in the education system. They recall the difficulties they faced and overcame to emerge with enhanced qualifications. See (Appendix H p392) which includes two access courses designed as alternatives to Junior and Leaving Certificate. They were aimed at providing entry at different points on the FETAC/HETAC qualifications framework. See Appendix J (pp400-414) which outlines the many collaborative stakeholder initiatives involving government, company and the local Institute of Technology designed to deal with specific requirements of disadvantage and general employee requirements.

The first and key recommendation involves the removal of all barriers to education and a commitment to providing the most supportive learning environment. The greatest challenge for employers and educationalists is to overcome a basic lack of confidence in returning to academic education. This was the considered view of 90% of the research respondents.

Continual reference was made by the interviewees to this (see Appendix B p5). Alice Power stated how important her involvement in the NOW (New Opportunities for Women Project) was to her development. Joe Kelly (see Appendix B p171) referred favourably on his involvement in the CODE Project (Creating Options for Disabled Employees). Jason King (see Appendix B p90) cited participation in Sesame Project as being a watershed experience for him. Every employee who participated in 'Expand' the company-sponsored programme was convinced that it was a breakthrough development experience for him or her. Other company sponsored programmes such as IT literacy, in particular ECDL certification was a first official training certificate for many employees. The confidence it gave them created the spark, which led to their continued involvement in education and learning. Where a special effort was made to address the specific disadvantage by eliminating the barriers in a supportive learning environment a 95% participation rate of the targeted employees and a 100% completion rate was achieved.

(2) The government as manager of Ireland Incorporated and ultimately responsible for the huge bank of state owned education and training resources on behalf of the people should lead the process in addressing the needs of the educationally disadvantaged over the next ten- year period to 2016.

Rationale: A key conclusion drawn from the findings in the research See (pp344-348) was that government needed to launch a radical national initiative to up-skill employees. The Irish economy is a small competitor in the global economy and is a single company operating in the international world market. It is important for economic progress that Ireland's workforce achieve branded status for innovation and creativity on a global scale. This international brand is best developed by government and its agencies as a single co-ordinated entity. In setting national policies and objectives for employee education and training, individual employees in all sectors are most likely to receive the support they need. The government needs to lead the co-ordination of resources to deliver a national employee education and training plan.

The competitive operating environment for the vast majority of Irish workers are the EU and World economies. See (Figures 2, p13- 17 p146 and 35, p214) The information available in these figures emphasize how important it is for the government to launch a radical initiative on employee education and training. The future success of the Irish will not be secured if such an important issue is delegated to individual work organisations and employees. Government has the strategic insights on the future of the economy, has influence with the stakeholders who are required to collaborate if success is to be achieved on this issue.

The literature review highlights the growing pervasiveness of globalisation on national and local economic development. Johnston (2005) p37, Russell (2000) p39, Barroso (2005) p40 and Hamel & Prahalad (1994) p42 in the literature review emphasize the accelerating growth of competitiveness. Since the advent of

technology and knowledge as primary drivers of the new economy the rate and depth of change has increased at a faster rate than ever previously experienced. The increasing demand for higher skills will grow exponentially with the speed of change. The government is determined to move the Irish economy up the value chain to compete at the higher end of the global economy. To do this the skills of the entire workforce needs to be moved up in parallel. It is impossible for educationally disadvantaged employees to redeem their educational deficit without substantial support from the state, as the change is too rapid, complex and demanding on employee capability currently. Figure 18 p147 outline the factors that will continue to influence change in the workplace and how education and training is essential to support employee performance.

Future competitiveness in a growing knowledge, technology based global economy in which the advanced economies operate will depend on the ability and agility of the national workforce to compete with other locations for foreign direct investment and for the competitiveness of indigenous industry.

The Irish workforce has to be trained and educated to excel in this broader political, economic, social and technological environment, which is changing rapidly all of the time. The government should treat the workforce as employees of Ireland Incorporated and as a unique national asset capable of building sustainable competitive advantage for the economy. The management of the upskilling process should be primarily a government responsibility. It will not be done otherwise.

The government controlled full time education system played a major part in creating the knowledge economy. The economy is dependent on good management practice at government level. Ireland is such an open economy that government policy is critical to creating the conditions and environment of individual business organisations to develop and prosper.

A radical initiative on the future education and training of a workforce of two million employees of mixed backgrounds and qualifications with 600,000 educationally disadvantaged employees is now needed urgently. The competitive advantage of the future for the leading economies will be based on the intellectual capacity of workforce to master and innovate with new technologies around new product development, customer service and cost enhancement initiatives. See Findings under government, time for action (pp338-343) and the conclusion in same section (p343) outlining issues that require government action.

The national workforce should be developed as a flexible and interchangeable mass capable of moving within their organisations and throughout the economy as the need arises. Every employee, in particular, the educationally disadvantaged should be given special help to redeem his or her education deficit and establish long-term employability status.

The multi faceted sides of the findings under employee student (pp314-323 and conclusion p323) outline the level of co-ordinated analysis from the stakeholder group if the educationally disadvantaged are to be reached. The stakeholders will benefit immeasurably from improved employee qualifications. The government,

employers, training providers and employees in gaining the benefits should invest in the solution. The government has the necessary power and influence to co-ordinate a national campaign to tackle the issue comprehensively.

If the residual educational disadvantage from earlier decades of limited opportunity is addressed properly over a ten- year period in a holistic way the problem, its size and nature will never again be repeated. The dramatic increase in participation in second and third level education since 1967 will ensure that the vast majority of people in the future will complete their Leaving Certificate and continue on to third level education (McSharry and White (1998, pp 26-27). The many negative circumstances that influenced participation levels in education and employment throughout the 1960s, 1970s and 1980s are never again likely to be repeated.

Educational disadvantage, currently includes all ages and both genders. The openness of the Irish economy and the race to become a knowledge based economy as competition from Eastern European states, China, India, Russia and Mexico for mobile investment grows requires immediate action on this issue of educationally disadvantaged employees over the next decade.

If this is done the government through the IDA will aggressively market Ireland under the themes 'Knowledge is in our Nature' and 'The Irish Mind'.

(3) That the four main stakeholder groups, government, employers, providers and employees form a coalition to tackle educational disadvantage in the workforce.

Rationale: Figure 38 p311 outlines gains to be made by the main stakeholder groups on investment in employee up-skilling. Figure 39 p388 outlines the detail of the work to be done to make a success of the recruitment process. The coming decade 2007-2016 should be dedicated to developing a 'learning economy/society'. Evidence from the study and findings indicate the role of the primary stakeholders in erecting many of the main barriers to education for disadvantaged employees. A number of key steps in the resolution will involve several government departments, employers, education and training providers and employees. If the 'big step' forward recommended is taken the economy will be better positioned to exploit a new dynamic source of competitive advantage as the global economy increases in size, affluence and influence.

The mobilisation of resources, the full commitment of the main stakeholders and the design and implementation of imaginative promotional campaigns using famous sports and entertainment personalities to encourage employee participation in education is essential in building momentum for participation.

The experience of the researcher confirms the need for government to lead the approach to the education and training of the entire workforce. There are major issues to be overcome if a comprehensive learning environment is to be established. The availability of advice and support is essential to the educationally disadvantaged and it

boosts their confidence which is the key to involvement and completion. In Waterford Crystal the location of so many trainers, champions, change agents, mentors, part-time lecturers made it possible for the most unlikely employee/student to receive the support and help they needed and when they needed it.

Informing a coalition all relevant resources will be focused on adding value and a learning economy and society will be constructed over the decade. Over time a work based alternative FETAC Level 5 qualification for employees will be of equal currency to the Leaving Certificate for secondary school students. The workplace qualification will be more relevant as the learning is transferable in both directions in through adult education in college and in the workplace. There is immediate benefit to be gained through job retention, redeployment, promotion, new work experience, inner sense of security, improved self image and self worth and access to further work and development opportunities. Once engaged in education and following the completion of the first course back the sky is the limit for many whose potential was closed off due to previous economic and personal circumstances.

The findings under all stakeholder headings make strong claims for a combined stakeholder approach. No one stakeholder has the answer to all the problems which are all multi-faceted. Many of the barriers are created by them and this proposed stakeholder coalition of interest with one focus will have the capacity to remove them. Government, employers, trade unions, education and training providers can facilitate or frustrate most employee development initiatives. The Learning Economy framework can engage the support of disability, migrant, traveller, women in the

home, elderly, adult literacy and community organisations in persuading, encouraging and supporting a return to education for the educationally disadvantaged in work.

Figure 4 p18 indicate that only skilled job exist in the economy today. If this contention was accepted there would be no justification for inaction in redeeming the educational deficit of educationally disadvantaged employees. Figure 2 p13 supports the theory of skilled employment only as Ireland operates in a high wage, high technology sector of the global economy where knowledge and technology are the essential competitive tools of a skilled workforce. Figure 3 p14 describes the flat agile networked organisation where interface with supplier, customer and new technology developments are every day features of work for all categories of employees.

A coalition of the main stakeholder organisations with the skills to identify training needs, design programmes, produce flexible and appropriate delivery methodologies, develop adult tutorial competencies and accommodate with time off and incentives the maximum employee participation is what is needed. Ongoing liaison between provider, student and employer on needs and solutions will deliver a successful learning experience for the majority of educationally disadvantaged employees.

The education of people at work requires knowledge of mentoring, coaching, leading, facilitating, influencing, negotiating, empowering, motivating and learning skills are essential to providing a rich learning experience for hard bitten, sceptical and experienced personnel. The availability of practical reference points, new work experiences to transfer and test the learning and access to learning with employees

from a variety of employments and with a variety of employees within the company enriches and broadens the learning experience.

(4) A National Employee Development Council (NEDC) should be established to co-ordinate all the available resources within the state to educate and up-skill all categories of employees and in particular those who are educationally disadvantaged over a ten- year period.

Rationale: The Enterprise Strategy Group report 'Ahead of The Curve' (2004 p79) advocates that an essential element of the 'One Step Up' initiative will be the appointment of a single body charged with driving the process and with setting targets and milestones for monitoring progress'.

Evidence gathered in this study by the researcher including his own experience in leading the education and training process in Waterford Crystal fully endorses this recommendation from the Enterprise Strategy Group. There is no doubt but that a single influential body capable of co-ordinating the widest range of resources available in publicly owned education and training bodies is essential. The ultimate solution of building a learning economy and workforce capable of continuous self – regeneration is the best short and long- term solution to eliminating educational disadvantage in the workplace.

The NEDC should include representatives from the Departments of Finance, Education & Science, Enterprise Trade & Employment, Family & Social Affairs, Community, Rural & Gaeltacht Affairs, FAS, National Qualifications Authority of

Ireland (NQAI), Irish Business Employers Confederation (IBEC), Small Firms Association, (SFA) Institute of Small and Medium Enterprises (ISME), private and public organisations and employee representative groups such as trade unions and community based representative bodies.

The proposed NEDC will take overall responsibility for designing a strategy and structure to develop a learning economy. The identification of the needs of the economy including employers and employees from the different sectors, the design and delivery of programmes, the accountability and evaluation process would be monitored under this joined up approach ensuring that all parties would contribute to the process. The identification and removal of barriers, the provision of adequate resources and funding and the eventual mainstreaming of programmes needs a joined up approach as individual stakeholder groups need to change and possibly restructure their resources if a best result is to be achieved.

The bank of innovation and imagination contributed would have been captured and held in one place to be reviewed and re activated in the context of a future national training plan for the educationally disadvantaged. Currently individual stakeholder efforts are stymied by inflexibilities that exist in the other stakeholder organisations. The cost, in time, resources and effort is prohibitive and can damage rather than enhance competitiveness and employability.

In private industry and services the efficient most effective solution is what is needed as time and skill shortages represent opportunity and revenue lost. The experience of industry, employees, education and lecturers has often been difficult. The

bureaucracy of EU and government programmes, the accreditation process, difficulty in customising programmes and the increasing cost of accredited education and training programmes have turned people away from considering education options. Business has turned to the development of alternative short in-house training programmes. These programmes focus on immediate job related needs only. There is little scope or concern for the broader educational needs of employees.

The coalition of interested stakeholders would have the influence and capacity to develop a new strategy and structure that would accommodate the provision of an adaptable set of learning experiences to cover all requirements. Without it the current fragmentation and duplication of resources and the marginalisation of the educationally disadvantaged is unable to make any major impact on employee up-skilling. Figure 18. (p147) highlight the annual turnover of jobs in manufacturing and the need for broader, transferable skills and knowledge sets.

Increasing contributions to the National Training Fund.

The current training levies of 0.7% of employers PRSI resources the National Training Fund (NTF) established in 2000. The income from contributions to the National Training Fund are estimated at €327m for 2005 (from the revised estimates 2006 presented by the Department of Finance to the Dail on 23rd February 2006) Income from other sources (investment income and European Social Fund) to the NTF was €2.5 million. A surplus of income over expenditure has been returned each year since the National Training Fund was set up.

The researcher proposes that the 0.7% be raised by 0.3% to 1% of employers PRSI to cover the additional costs of a dedicated and comprehensive educational experience for educationally disadvantaged employees only. The additional 0.3 % would realise an additional € 46.7m per year on 2005 figures. This figure would increase in line with the continuing increase in employment predicted over the coming years. The redeployment of existing resources within institutions, the reduction of social welfare payments, increase in NTF funding and the collaboration of employers and employees which would bring additional facilities into play (training centres, tutors, mentors, coaches, work experience elements of programmes) would be sufficient to kick start the introduction of the new inclusive learning economy.

Initial programmes for the educationally disadvantaged are likely to be the least expensive. As employees move up the progression route the course cost increases. It is recommended that the courses are free up to Level 5 FETAC. The combined expertise of the stakeholder group should be able to identify the most appropriate incentives for employees to return to education and engage in a lifelong learning cycle.

Direct state expenditure on employee training is currently extremely low FAS (2005 p5) training for businesses and the employed was €22m in 2004. FAS was allocated an additional sum of €27m for 2005 which was not fully spent. The shortfall has been added to the 2006 budget and efforts are being made to spend it significantly every year with on average 40/50 additional migrant workers gaining employment in the country.

Every year the workforce is expanding. At end of the first quarter 2006 it had expanded to 1,998,100 employees CSO (QNHS 31 May 2006). Over the past ten years the workforce had expanded by 800,000 and the prediction for the future is that it will increase by between 50000 and 70,000 per annum to 2011 and beyond. It is time to develop a national training plan that includes the development of a learning economy and a personal development plan for every worker. The NEDC is required to tackle all the issue relating to employee education and training over the coming decade.

According to O'Connell (2005 p4) in his report on Data Analysis of In-Employment Education and Training in Ireland for the Expert Group on Future Skills Needs states that only over 1% of those without qualifications participated in formal education over the previous twelve months which emphasizes the size of the problem. The researcher recommends from the evidence gained in the research that there is a great urgency around restructuring current provisions prior to increasing spending. There are serious structural issues to be addressed if the most effective use of additional monies is to be achieved. The collaboration at the centre of the NEDC model is the best way to maximise the integrated use of resources across FAS and third level institutions.

A range of research reports indicate that the most likely employees to receive assistance through part-time education are those with qualifications and as the above 1% participation figure for educationally disadvantaged shows a much more radical approach is needed than just providing additional funds. The twenty

recommendations anticipate the restructuring of existing and the development of new structures to focus in better on those most in need.

The remaining sixteen recommendations fill out detail of the main structure as recommended in the first four main recommendations. The details involved capture the essence of the comprehensive learning environment created by Waterford Crystal which was so successful in attracting so many employees into education and training.

(5) The NEDC will develop a ten- year plan to eradicate educational disadvantage in the workplace. At the core of the plan will be the implementation of the ‘One Step Up’ in educational qualifications.

Rationale: The 600,000 disadvantaged employees will have their deficit addressed over a five to ten year period if proper structures and incentives are put in place. Figure 39 (p388) is the proposed framework needed to attract and develop educationally disadvantaged employees back into the education system. The key aim of the programme is to provide every employee with sufficient skills and confidence to become an independent learner. They are labelled in this study the ‘lost generation’. The label is an attempt to describe the dilemma of being successful and experienced employees who suddenly need the support of a good basic education to continue on as valued and effective employees in the new economy. The ‘lost’ label emphasizes their inability to move on in the new economy and compete for the new skilled jobs coming on stream. The state regards them as employed (privileged) assuming their capacity to acquire whatever skills are needed. The reality is a whole lot different and the thrust

of the study aims at surfacing the many issues that are holding them back from gaining the necessary qualifications to support their progress in the future.

Throughout the period 2007-2016 the NEDC should set out to establish a learning economy, which will attract the maximum participation of employees in education and training up to 2016. The range of education opportunities developed by NEDC will create a new learning culture. As the economy continues to move up the value chain and the workplace becomes more complex and sophisticated employees will be able to lead and manage the change process. In the future it will be the intellectual capacity of the national workforce that will establish Ireland as a laboratory of innovation, entrepreneurship and competitiveness and secure future prosperity for Irish society.

(6) The CEO of the NEDC will liaise with the Assistant Secretaries of the Departments of Enterprise, Trade & Employment, Education & Science, Social & Family Affairs and the Department of Finance in the Office of An Taoiseach twice yearly to review progress against agreed targets.

Rationale: All the evidence from the Waterford Crystal Ltd case study demonstrates that unless the executive management team of Ireland Incorporated is totally committed to achieving this goal it will not be achieved. What gets measured gets done! If stakeholders agree to fully account for their stewardship the national programme will become a resounding success. Waterford Crystal workforce led by the executive returned a 99% success rate on EU and government sponsored pilot programmes. The very same principle applies is even

more relevant in this situation as powerful interest groups may not want to collaborate to the degree needed to make a success of the ten year project.

A genuine joined up strategy is needed headed up by An Taoiseach to ensure that every resource available is put to use in the interests of employees, employers, economy and society. Key performance indicators need to be agreed and set for the NEDC and its constituent bodies. Records of the progress made in terms of courses developed, participation and completion levels, new innovations and returns on investment should be maintained throughout the period. Records of individual employee career path developments such as that recorded in phase three of the research should be collated through the intellectual asset register. The development reports needs to establish the starting and end points of employee development under the programme. In 2007 I was a construction labourer or general operative or security guard and progressed to become a bricklayer, technician, engineer or whatever and this was what I did to get there.

It is critical that each stake holder's contribution is logged to provide detailed and accurate information on what happened, how it happened, what the barriers were, how they were removed and what supports were put in place and the difference they made. The key steps in the development log of every employee and every employee category needs to be included for future reference. It is likely that the national skills register/ intellectual assets register will be developed in the coming years. A true picture of the skills available in the economy is needed so that the relevant interventions can be framed to best effect and a better management of the labour force can occur.

(7) The NEDC would oversee the development and implementation of a national education and training plan offering the provision for all categories of employees.

Rationale: A national employee development plan will require the ordered collation and use of available resources. Priorities will be set to ensure that those that need support most (educationally disadvantaged) will get it. Access to professional assessment is a critical first step in the re-education and retraining process.

The national training plan should include the implementation of the 'one step up' recommendation from the Enterprise Strategy Group. It should include an adult trainers / tutors register and a national skills register. The development of a personal training plan structure as advocated by FAS in their 2006-2009 training strategy report is worthy of inclusion. It reaches into the core of the findings and conclusions from this study. Figure 17, p146 highlights the drivers of organisational and job specification changes. In this change environment all development programmes for the educationally disadvantaged should be employee/ student centred. Every employee should be treated as a special case. They should have their specific needs dealt with in a friendly and confidential way that builds the essential trust between provider and recipient from the very beginning. It is through the mobilisation of all the available education and training resources under the umbrella of a national co-ordinating body producing and implementing a national training plan that the best possible results in course completions and maximum use of resources will be achieved.

Figure 36 (p306) recommends a portfolio of balanced skills best suited to prepare the employee for adaptation to future industrial change. The portfolio includes the four areas of educational qualifications, job/work skills and competencies, inter-personal skills and independent learning capacity. The same structured portfolio should be made available to general operatives and the general managers. EDCL might suffice for the general operative and a master's degree in information technology might be necessary for a manager in an information technology based company. Leadership skills for shop floor team leaders and strategic business leadership skills for top managers. The principle of the structure should be applied to all categories of employees in the economy.

(8) The NEDC should ensure that successful employee education / training programmes that are developed through funded pilot projects are mainstreamed for the benefit of employees countrywide.

Rationale: The mainstreaming of the best pilot projects is essential if access to innovative and targeted educational opportunities is to be provided in every region.

In the experience of Waterford Crystal throughout the 1990-2006 period of transformation many of the most innovative programmes developed were lost once the final report and financial audit was signed off. The sharp contrast in the effort expended on preparing applications and the mainstreaming of the most innovative

results was difficult to accept. There was huge effort spent on forming consortiums with industry and education and including trans national partnerships, the adjudication process, the implementation process, tracking of expenditure and grappling with rigid rules and regulations was at times frustrating and debilitating. The programmes should have been more focused on the end game and how each successful programme could impact on the up-skilling process countrywide. There are many of the most innovative measures and initiatives in report form lying on shelves in industry and in departments that would make a massive difference to employee capability in particular to the future of educationally disadvantaged workers at this time. Figure 37 p305 highlight the potential benefits from engagement in education for employees.

Many of the best programmes were those that drew the most innovative responses from employees working at the coalface. They were very influential in shaping the design and therefore acceptance at a later stage. The employees understood the context and the realities. They experienced the barriers first hand and stood to gain most from completing relevant programmes whose learning outcomes could be immediately transferred into the workplace. They were then more willing and able to immediately transfer the learning to achieve higher productivity, quality, customer service and cost efficiencies. The collaboration between industry and education created a rich dynamic that produced some outstanding solutions to educational disadvantage and business competitiveness issues.

On successful completion though the dead hand of bureaucracy took control and shelved many excellent initiatives unaware of their potential to liberate so many employees who were trapped in the straight jacket of educational disadvantage. The

option of referring the best most influential programmes to a national mainstreaming unit holding the support of the main stakeholders did not exist.

The absence of an overall co-ordinating body for all government and EU human resource projects has been a major deficit down the years. Individual efforts were made to mainstream the best most innovative programmes but many progressed no further than the printing of reports and CD ROMs and the running of conferences and seminars as once off promotional initiatives. Some outstanding projects sponsored by the main education and training institutions were saved and are proving to be of inestimable value to employees and employers today. A co-ordinating body involving the main stakeholders (such as NEDC) would ensure that the best programmes were adopted by mainstream institutions and delivered to industry countrywide.

(9) That an Employee Development Recruitment Agency (EDRA) should be established to recruit, develop and certify employees with relevant education and training qualifications.

Rationale: It is essential that employee development centres are located in all the main population centres to take the educational opportunities to the people. EDRA would act for the NEDC on the ground. Its remit would be to promote education and training opportunities in their catchment area. EDRA would be mandated to recruit the maximum number of participants back into education by offering a complete service from assessment to mentoring educationally disadvantaged employees through relevant education and training programmes.

(10) EDRA (Employee Development and Recruitment Agency) would provide a network of 'one-stop-shops' in the regions and located in current facilities.

Rationale – To ensure that every employee is supported in their own region there is a need to provide a one stop shop representing all the relevant agencies to ensure that every employee has ready access to a full set of information to help them to participate. The research findings (see Appendix B pp2-325) indicate that many employees returned to education following extensive briefings from members of the training team or chance meetings with employees who either knew about the course or had completed it themselves. There is a need to provide a comprehensive information and promotional service to capture the interest of the maximum number of employees in particular the educationally disadvantaged. EDRA could be located in FAS centres, Vocational Education Committee Centres, Institutes of Technology and Universities.

It would provide career guidance, assessment, direction, information on progressions routes, mentoring and funding. It would be responsible for recording the learning experiences of participants and logging the different stages of their development. It would provide feedback to the NEDC of progress that would serve to inform future planning and design of new programmes.

This proposed comprehensive approach would need every location to have the resources and authority to advise the many different categories of employees. Regional knowledge and emphasis would ensure the best education and training options for local, regional and national employment. EDRA would co-ordinate the resources on the ground and eliminate the existing fragmentation and duplication of services. Planning the maximum utilisation of current resources available would be a priority. It would have the power to adjust current provisions and request new programmes as the need arose.

Currently there is confusion, duplication and competition among publicly funded education and training providers, which is wasteful. There are major gaps in provision that require co-operation between the agencies, training institutions and industry and between industry and its employees. EDRA's mandate would ensure that the best use of resources would be achieved in each region through close collaboration and specialisation where appropriate.

- (11) 'Employee Development Officers' (EDO) should be appointed by EDRA to liaise between the main stakeholder groups on behalf of employee/students.**

Rationale: The development officers would act as trouble shooters on the ground resolving all sticking points that interfere with the progress of programmes and individual learners. They would also act as mentors and advisors for employees lacking the self- confidence and lead and guide them through to the finishing line in their first course back. The EDO would act on the ground promoting opportunities

and initiating collaborations and new forms of engagement. Evidence from the Waterford Crystal experience suggested that the availability of a close confidant in times of personal crisis can avert the possibility of hasty and negative decisions being made. They can make all the difference once the issue has been discussed and a way forward agreed /confirmed. The power in the psychology and presence of a professionally trained advisor at the end of a phone or in a local office to discuss personal and programme issues throughout the year is a comforting and sustaining feature for many employees.

The philosophy underpinning the EDRA service is to provide a comprehensive education and training support service ensuring the maximum number of employees return to education and training. EDRA staff would be trained on how best to attract employees to the centre for assessment and advice. Once they decided to attend a concerted effort involving the agency and employer would be made to encourage employees to commit to completing a first course. A comprehensive support service would be designed to retain the interest and commitment of the employees in moving one- step forward. The overall priority would be to develop independent learners fully aware of the value of continuing education and training and the benefits accruing from it.

A key issue in gaining the participation of educationally disadvantaged employees is the competence and attitude of those assigned to help them. If the approach is officious, cold and neutral at best there will be little chance of a meeting of minds.

When the educationally disadvantaged employee decides to attend EDRA they are hoping for a very positive experience. They are sensitive to every type of negative signal that may confirm past negative experiences in education. It may confirm the perception that they missed the boat first time round and what is on offer is well beyond their current capability. The already fragile confidence of the educationally disadvantaged employee needs to be immediately bolstered with encouragement and advice on the positive options open to them. Examples of peer success can often motivate people to consider participation. They are most often not in a position bar the exceptions to overcome apathy, bureaucracy and put downs on eligibility criteria. The service needs to demonstrate to the enquirer that they are welcome and that all the help they will ever need to complete a first course back to education and training is available. It will be critical for EDRA to offer each employee the most suitable first course back to ensure initial success.

The better and more personal the service provided the greater the chance of ensuring a successful outcome. The EDO's would operate in the background ensuring that the needs of the employee were being met and would intervene to resolve difficulties only when necessary and as a last resort. The experience in Waterford Crystal indicated a need for an independent broker to sort out the serious difficulties that are present among the stakeholder groups. Small difficulties and misunderstandings if left to fester grow into major problems and lead to employee, students dropping out of the classes.

EDRA and its EDO's would be ultimately responsible for developing an implementation strategy for the 'One Step Up' programme while taking on a special

responsibility for the re-education and retraining of educationally disadvantaged employees. Both objectives are mutually interconnected as when the educationally disadvantaged move up after the first course is completed they enter into the mainstream and will follow the remainder of the workforce in 'One Step Up' programmes.

- (12) Full-time training officers, (large organisations) part-time training officers (small & medium organisations) and contact training persons (smallest organisations) should be appointed to liaise with the EDO, EDRA and NEDC.**

Rationale: Every participating organisation would have to produce a annual training plan and a report on their skills and knowledge base prior to their engagement in education and training by their employees in NEDC sponsored training. The minimum paper work would be required. The issue of accountability would be critical and only relevant and beneficial training would be delivered during working hours and part-time education after working hours. In establishing an agreed employee development agenda in which all stakeholders commit to deliver on agreed contributions the results can be easily assessed, audited and improved over time.

- (13) All companies large and small should produce company education and training plans on an annual basis with the assistance of EDRA.**

Rationale - The training plans would include the identification of the education and training needs, training programmes planned, recording of attendance at and completion of courses (accredited where appropriate) the evaluation of courses and a

cost /benefit analysis. A personal training plan would be developed for every employee.

A big handicap to winning the support of employers and investment in employee education and training is the difficulty with measuring the outputs. The job of the EDO (EDRA and NEDC) will be to develop an agreed evaluation process that will produce credible information on cost benefit.

(14) Education progression routes will be developed for all employee categories across a multiple intelligence range of work disciplines.

Rationale – NEDC would strive to organise the provision of a range of progression routes covering all major work disciplines across all sectors of employment and economic activity. The availability of progression routes will encourage employees to realise their full potential at work and as persons. The evidence gathered from the research studies phases 3, 4 and 5 indicate that clear and credible progression routes are strong incentives for employees as almost every employee student intended continuing on until they had achieved a satisfactory education that would help them progress in work. In almost all cases once the initial programme has been completed there is an immediate interest in the next step.

For many the first completed proved a liberating experience and released a long held but pent up frustration with their education deficit. The contrast in educational and employment opportunity between when they entered the workforce and today is

great. The potential and influence of educational qualifications in determining employment and lifestyle standards has created a new interest among all employees on possible learning options. Findings from the study indicated its magnetic properties once the initial first course back barrier was overcome. The availability of progression routes is a central incentive for those who are educationally disadvantaged. See appendix B (pp 2-325).

(15) A comprehensive awareness campaign including radio and television programmes explaining all aspects of the need and impact of skills and qualifications on a changing economy should be produced.

Rationale - There is a great need to initiate a public debate on future economic and social development and the skills and qualifications required by employees both now and in the future. Findings from the research indicate how unaware employees are of what is happening in the global economy and in education and training and the choices they face in securing a long term future in work. A national conversation is required to inform the public and employees on what is happening and what the future may hold to enable them prepare for it. The emergence of the Celtic Tiger economy in the 1990s caught many unprepared in particular the educationally disadvantaged.

The experience of the researcher confirmed that awareness of change and the value of education and qualifications at shop floor level among the educationally disadvantaged were extremely low. The sponsorship of pilot programmes includes a dedicated recruitment process, which involved approaching eligible individuals and selling them the value of participation. Meanwhile their families were invariably

heading to places in third level education on the basis of the company's communications strategy around the ending of generational employment in the company and the absolute importance of education in securing employment in the new organisation and economy.

There is a need to provide ongoing information in the print and electronic media raising awareness among the public of the creation of a learning economy and society. There is also a need to build a context in which the need to gain new qualifications is seen as absolutely critical for the national workforce. There is also a need to carry out promotions campaigns using well-known sports and entertainment stars on the value of education and training and what it meant to them. There is also a need to explain likely developments in the future and to brief all students and employees as to the options available in education and in employment and what it takes to get through the system.

(16) An 'Employee Development Unit' should be set up in every third level institution to specialise in employee development projects with local enterprises.

Rationale: The remit of the employee development unit in educational and training institutions parallels to some degree the role of the training officer/ contact person in industry. Both are dedicated to making things happen in education and training of the workforce. Both are dedicated to developing agreed employee centred programmes in the context of industrial change. The priority of the unit is to keep up with the change process in industry and ensure that the appropriate education provisions are made available to employees with the support of their employers.

If there is to be a step change in the approach of education and training institutions to the education and training of employees these 'special development units' are needed to specialise in working with industry and services on employee education and training programmes. There is a need for colleges to allocate full time resources to initiate and inform the development of appropriate programmes as required and prepare for future needs of employees. The customisation of programmes, accreditation of prior learning, accreditation of courses, combination of modules to form degrees and diplomas, assessment of employees, training of adult tutors, use of a range of flexible delivery methodologies can all be best developed through close collaboration between dedicated specialists from education and industry who can accommodate the widest range of views.

(17) The concept of a minimum set of qualifications (mandatory) corresponding to the minimum wage should be established.

Rationale -Every employee/citizen should be provided with free access to achieve this minimum standard of qualification to work in the Irish economy today. This initiative should be part of 'The Irish Mind' brand. A certificate in employment skills (FETAC Level 3) should cover the basic requirements for work. It should also act as an entry point into the FETAC/HETAC education system. The certificate should include:

- A general understanding of the business.
- The specific business objectives.
- Relevant job skills.

- Understanding of the principles of teamwork and interpersonal skills sets.
- A basic information technology (ECDL) qualification.
- An appreciation of quality standards.
- Induction in health & safety requirements.
- A good basic knowledge of customer service requirements.
- Communications, including verbal, reading and writing skills.

This minimum qualification would offer every employee the opportunity to gain and retain employment in a knowledge-based economy, engage in learning on the job, pursue an education progression route and become a competent employee and a source of competitive advantage. See Figure 37 p307 and the significant change that can be achieved in a range of employee competencies, behaviours and attitudes.

Many currently educationally disadvantaged employees denied a first chance at secondary or third level education have contributed enormously in building up the economy. They now need a first or second chance at secondary and third level education or its equivalent to enable them perform as successfully in the new economy with resulting benefits to all stakeholders. In redeeming their education deficits they can progress to play an important part in the new knowledge based economy. If ignored their capacity to contribute will be reduced and the productivity gains to be won forfeited.

Equally as individuals they will be most vulnerable in a down turn and will invariably be the first to be made redundant and the last to be reemployed. If the concept of free

access to a minimum set of qualifications was established they will be better able to cope with crises and new opportunities. Those who secure this qualification will most likely be able to continue on and engage in life long learning. They will most likely be motivated to at least take another step and gain further qualifications as they experience a return of confidence and a rise in self-esteem and self worth. Phases three, four and five of the research clearly indicate the magnetic effects of self development and how it can drive people on to attain the most amazing results.

(18) A national broadband network would be installed connecting all stakeholders and participants in the learning economy in sharing information and experiences.

Rationale:

A country wide broadband network would be served by an NEDC website informing all employees, managers, employers, providers of learning economy developments and maintaining a focus on progress and outcomes. The network would support the cultural dimension of the strategy and would enable the most disadvantaged access to available supports and would complement the EDRA network on the ground.

Conclusion

The overall summary of the recommendations confirms the need to launch a major national employee development initiative at government level. Access to this new provision would enable them to build and sustain a competitive economy. Handy's sigmoid curve concept contends that an initiative such as the one proposed should be implemented as the economy is riding the crest of the wave and while the resources are available to do it.

All indications suggest that the global economy will continue to develop at a rapid pace. Ireland will continue to compete at the higher end in the 'most developed nations' category. Skilled and qualified workers are essential to build and secure a competitive economy. The global economy is set to expand as China, India, Russia and other countries progressively develop and represent huge additional production capacity and new market potential.

Equally the predictions are that the Irish economy will grow by between 4% and 6% of gross domestic product each year for the next 10/20 years leading to greater complexity in the workplace. It is almost a certainty that greater numbers of skilled employees will be needed in every sector to sustain this growth. With many countries short of skilled labour it is critical that government take the initiative to retrain and re-educate those that are currently educationally disadvantaged.

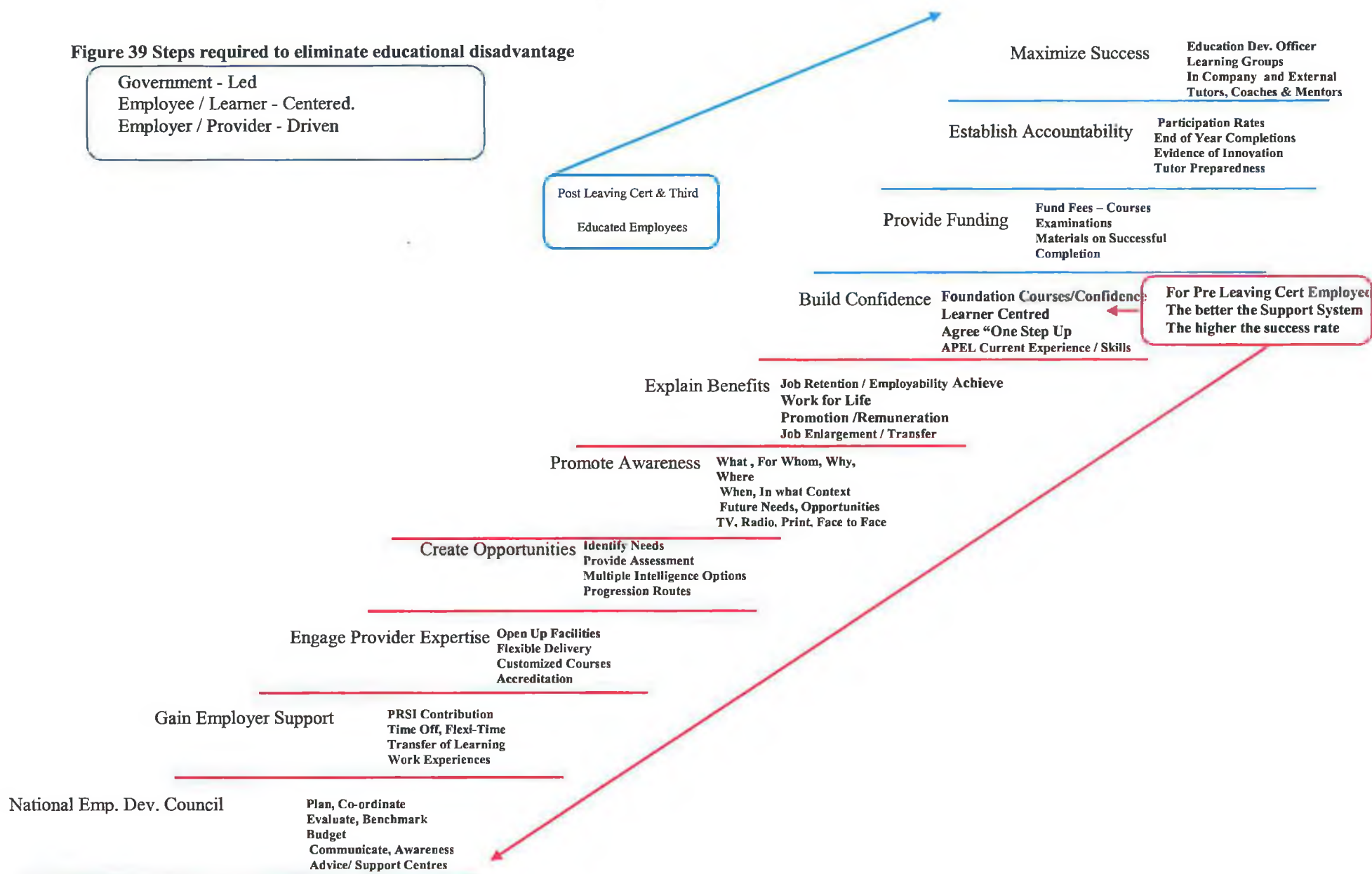
In the drive to maintain a competitive edge there is a need to redeem the position of educationally disadvantaged employees as a priority issue and for the future well being of the economy and society. To achieve this objective it is imperative the Minister of Finance raise PRSI in his next budget as suggested in Recommendation 4. The €46.7 million which this would generate annually over the next fifteen years together with savings from unemployment benefit would enable these recommendations to be implemented and thus offset the education deficit of the 600,000 educationally disadvantaged employees currently in the Irish economy.

Education is an investment in human capital yielding both private and social returns according to O'Hagan & Newman (2005). They make the point that apart from the

personal gain, investment in education confers positive externalities on the rest of society that will not be taken into account by individuals and firms. Continuous education and training will prevent skill shortages, create a more adaptable labour force with greater innovative ability and make the economy more attractive to outside investors all of which facilitate economic growth. It also has positive welfare effects such as a healthier population, reduced crime, poverty, healthy democracy, higher levels of political participation.

OECDs current mandate for education and skills is 'making learning a reality for all' while at the same time promoting educational equity. The main role of education is to produce a well-educated workforce capable of meeting the demands of an expanded economy. By ignoring the social returns individuals and firms will under invest in education and training (i.e. education will be provided below the socially optimal level) thus providing justification for government involvement in its provision.

Figure 39 Steps required to eliminate educational disadvantage



Further Research

In reviewing the literature it was apparent that little research has been carried out into workplace education and training for the educationally disadvantaged. There are major gaps in information on the exact education status of those termed in this report educationally disadvantaged. The Expert Group on Future Skills Needs play a leading role in producing valuable reports on a variety of areas of national concern on skill and education needs. Many of their reports concern graduate short falls in the different sectors. Fine details on the educationally disadvantaged are unavailable.

To tackle the issue of educational disadvantage at work quality information is needed on employee qualifications, job content changes, job and skill obsolescence, the specifications of new occupations and jobs coming on stream. In particular a much better insight is needed into what skills are required at the lower end of the system and how they compare with traditional low skilled jobs. There is also the need to establish progressions routes from low skill to high skill employment and including every sector of economic activity requiring vocational, craft and academic based qualifications.

Every employee in today's workplace should be provided with a personal development plan. It should be the 'next step' for them in an optional progression route through education relating to work areas best suited to their employment needs, their personal aptitudes and interests.

The business and employment environment is changing so fast that a comprehensive suite of progression routes covering all the main disciplines both the academic and

vocational based is required by the national workforce. The following areas of research are recommended:

(1) A comprehensive study is needed on the future education and training requirements of every employee in the country. The terms of reference should include investigating the value of setting up a national intellectual asset register. The qualifications and work experiences of every employee in the state should be recorded and all future qualifications added on by the granting body/successful student. The register would assist in future employee development planning initiatives and investments. The register would also provide a base level that would enable outcomes from future investment to be measured. To build the initial base data all registered employers and employees should be surveyed to establish current education and training profiles along with their training needs and career interests. Every unemployed person on social welfare payments should be surveyed to complete a labour force register.

(2) An in-depth study of those in work and who are not interested in further education is needed to inform the policy makers. There is a need to ascertain why there is such little interest from employees in improving their qualifications at a time of great need and opportunity. Greater detail is needed on the forces at play that has created this situation. Also there is a need to find out what needs to be done to create new interest and raise participation levels in education and training. The speed and complexity of work and life caused by economic, social and cultural change that requires continuous learning deserves a much deeper examination. Despite several initiatives on the lifelong learning agenda since 1996, the spread of information technology and the Internet, the massive expansion in employment opportunity

including a majority of highly skilled and rewarding jobs the participation rates in adult education remain extremely low.

(3) Research is required to examine the changing specifications of jobs and the new skills required. This information would inform employees, employers and providers on the development of new qualification more relevant to a fast changing economy. All job categories should be studied across the main employment sectors, transport, food, pharmaceutical, financial, electronics, agriculture, tourism and hospitality, education and health. A master file on employment sectors, main job categories and the fundamental qualifications and skills required should be established as a base document. Industry, education and training providers need to jointly research this area to inform their strategic planning processes for the future.

(4) A research project between enterprise and education on how adult – employees learn best is needed. There is little research information available on the needs of adult employees as distinct from adult students. It is time now to study the needs and fears of employees who will in the future need to return to education and gain new qualifications as they move between jobs in their working lives. There is an urgent need to design best practice approaches to the education and training of employees operating in pressurized working situations. The more relevant and supportive the education experience the greater the number will succeed and will convince others back into education and training. The development of the best teaching and learning methodologies, course content and materials to meet the needs of the different categories of employees is important. A benchmarking of global practices should be incorporated as the competitive platform is global. There is a

need to build competence among lecturers, trainers, coaches and tutors on teaching adults and the facilitation of their learning taking into account their individual circumstances.

(5) Finally research is recommended on the value of employee education and training and its benefit to the four main stakeholders. The study should involve qualitative and quantitative measures. If the coalition of interest is to be maintained each stakeholder needs to be clearly convinced of the gains to be made on their investment. Many of the age old perceptions and understandings need to be examined and challenged as how they stand up in a modern context. There is a need to develop a nation of self directed, independent learners who are capable of continuously adapting and excelling in a changing, global business environment (see figures 2 p 13 and 35 p214).

In referring to the Internet and Wikipedia the on-line encyclopaedia to which anonymous experts donate their expertise on the latest invention posted its 1 millionth article in March 2006 Lev Grossman in (Time Magazine 20th March 2006 p35) states, 'We are on the verge of the greatest age of creativity and innovation the world has ever known'. Figure 6 p24 advocates action on regeneration when the resources are available to support it. The Irish Government on Sunday 18th June (Irish Times.2006) launched a strategy to develop a knowledge driven economy which includes an investment of €3.8bn on scientific research over the next 7 years. A staggering €2.7bn will be invested with third level education and the private sector before the end of 2008. In the above contexts addressing the educational deficit will create new capacity and a more equitable and inclusive society. The time for action is now.

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