

The Economic Role of the Further Education sector in Northern Ireland

Department for Employment and Learning

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EXECUTIVE SUMMARY

Background, terms of reference and approach

In February 2003 PricewaterhouseCoopers (PwC) were commissioned by the Department for Employment and Learning (DEL) to undertake an examination of the economic role of the Further Education (FE) sector in Northern Ireland. The main aim of the study was to investigate two key elements in relation to FE College activity:

- **Demand side;** the labour market demand for the different qualifications and types of study undertaken at FE Colleges; and
- **Supply side;** the extent to which the FE sector is meeting existing demands, and responding effectively to changing demands.

In order to address these issues, the study involved three inter-related, research strands:

- **A review of relevant regional, national and international literature** on the role of the FE sector, business demand for skills, and the impact of education and training on the progression of individuals in the labour market;
- **A review and analysis of existing data**, in particular, a **questionnaire survey** which was administered recently to all FE Colleges in Northern Ireland by DEL; and
- **Consultation with a range of relevant stakeholders** including employer representative bodies, local councils and economic development agencies.¹

Skills, economic growth and labour market success

There is a widely held view, backed up by considerable empirical evidence, that high standards of education, training and skills make a positive contribution to business development, individuals' labour market success and, ultimately, economic growth.

¹ Note that the College questionnaires gathered mainly qualitative (i.e. open-ended) responses, and so our team had to exercise caution and considerable judgement when interpreting the results. Similarly, although the consultation exercise covered all of the main sectoral bodies, economic development agencies, and a sample of local councils, the overall scale of the exercise was limited (10 sectoral bodies, 6 agencies and 5 local councils). This meant, again, that judgement had to be exercised when interpreting the results of the consultation exercise. All of the findings presented in this report, therefore, should be interpreted in light of the fact that there were constraints on the nature and scale of the fieldwork which could be undertaken as part of the study.

The research undertaken as part of this study, mainly in the literature review, has highlighted a number of specific points of interest in relation to this overall finding:

- There has been an interesting element of ‘**revisionism**’ recently by some leading academics, who have argued that more education *per se* is not necessarily beneficial to businesses. Rather, it is argued that the focus of policy ought to be on improving the **quality of education rather than increasing the quantity**;
- There is clear evidence to show that Northern Ireland **businesses have a strong demand for a wide range of generic skills** (e.g. literacy, numeracy, communication, problem solving etc). Such skills are likely to have become more important in the last 2-3 decades in light of the increased need for flexibility and adaptability in the workplace, driven by a sophisticated and constantly-changing profile of market demand;
- There is **some empirical evidence from employers of the demand for specific technical skills being at the higher technical level** (e.g. in Northern Ireland’s mechanical engineering sector). However, on balance, **the evidence suggests a rather mixed profile of skills demand across Northern Ireland’s key priority sectors** (e.g. in the IT sector the main skills gap relates to graduates with 5-10 years project management experience);
- Empirical evidence, at national and international level, on the specific economic impact of FE seems rather limited. What evidence there is, focuses on the **wider economic role of the FE sector**, i.e. its role, not only in terms of the ‘production’ of skilled labour, but also in terms wider impacts including urban regeneration, business consultancy, work-based learning and inward investment support;
- The evidence clearly shows that ‘**education pays**’; a number of ‘returns to education’ studies for Northern Ireland and elsewhere, show that higher levels of education lead to better subsequent earnings in the labour market. However, there is a growing body of empirical evidence from the UK which shows that **occupationally oriented qualifications pay rather less well than their traditional academic counterparts**. For example, some of the studies we reviewed suggest that employers will pay 2-3 times more for someone with a traditional academic qualification compared to the same broad level of vocational qualification. This is likely to reflect:
 - an apparently persistent **culture** amongst UK business which tends to favour the traditional academic route, and to view **vocational qualifications as relatively low status**; and
 - the **increased importance of generic skills** within the context of a sophisticated and continually changing market demand.

FE and economic development in Northern Ireland

The evidence from this study suggests that Colleges' involvement in, and contribution to, economic development activities, has improved significantly in recent years in Northern Ireland. This finding is reflected in a number of specific pieces of evidence:

- Around four fifths of all those consulted as part of this study (21 in total) indicated that they thought there had been a clear strengthening of FE's economic role since 1999;
- Most of the sectoral bodies (over 75%) thought that the FE sector had, in general, improved its responsiveness to skills shortages;
- All of the economic development agencies and local councils interviewed felt that their own links with FE Colleges had improved since 1999; and
- In relation to helping to stimulate the small firm sector, 86% of all those consulted (21 in total) indicated that they thought FE's role had improved significantly since 1999.

The evidence suggests that a number of key factors have been driving these findings:

- Feedback from the College questionnaires *and* the consultations suggests that Colleges are generally adopting a **more intensive and more strategic focus on economic development** now, than they did prior to incorporation;
- Related to this, Colleges now see their role not simply as education and training providers but, rather, more broadly as one of the **key drivers of economic development in their local area**; they offer consultancy, business support, research and development, and a wide range of other business support services, in addition to education and training provision;
- There was a clear recognition amongst the wider stakeholder group that one of the key strengths of the FE sector lies in the **strong local networks** it has with schools, businesses and other public sector agencies;
- In response to the demands of businesses, individual Colleges have in recent years been involved in developing a **range of more flexible forms of training delivery** (e.g. e-learning, short modular courses etc). Their activities in this area represented one of the key ways in which Colleges were trying to respond to, and indeed anticipate, changing requirements for training in a modern labour market;

- In addition, a number of specific initiatives and programmes have also made an important contribution to the enhanced role of FE in economic development (e.g. **Lecturers into Industry** scheme); and
- Colleges recognise that their stronger links with industry have been helped, at least in part, by the **proactive efforts on the part of the Department and the Association of NI Colleges (ANIC)** in terms of marketing the sector to businesses.

Notwithstanding this broadly positive picture, there are, nevertheless, a number of areas in which the evidence suggests that the sector could improve on its economic development role: firstly, there is a need for Colleges to be **even more flexible and business-facing** than they currently are. This might involve developing their provision of, for example, short courses, work-based learning, the development of non-traditional learning times, and e-learning. Secondly, there is a need for Colleges to **understand the needs of business** even better. This will require Colleges to continue to build strong networks with local employers. It also means that the Department will need to ensure that higher-level labour market intelligence on employers' skills needs is developed and disseminated regularly to Colleges.

I BACKGROUND

Introduction

- 1.1 DEL is currently reconsidering its strategy for Further Education (FE). The objective of this re-consideration is to produce a clear, detailed and comprehensive strategy for the FE sector, setting out the direction and targets for the next ten years.

Terms of Reference

- 1.2 The aim of this assignment is to develop a picture of the labour market demands for those who leave, graduate or progress from FE, paying particular attention to different qualification levels and subject types. The assignment must also examine how this picture is changing and to what extent the FE sector currently addresses or is working effectively towards those demands.

- 1.3 The terms of reference for the assignment are:

- **Literature review:** an examination of relevant and existing regional, national and international literature and data sources, along with an examination of existing evidence on labour market returns to different levels of vocational qualifications and different subject types;
- **Economic analysis:** an examination of how the FE sector has responded to its mission of supporting economic development particularly in the context of the skill gaps and labour market demands identified by the literature review;
- **Effectiveness analysis:** an analysis of how employer organisations and other key stakeholders view the effectiveness of FE provision and the extent to which it addresses skill needs; and
- **Delivery barriers:** identify any barriers that exist in relation to the FE sector achieving its economic development mission in an effective and efficient manner, and highlighting examples of best practice when addressing these barriers.

- 1.4 The report is structured as follows:

- **Section II – Methodology:** this section outlines the approach used to carrying out the project;
- **Section III – Literature review:** this section reviews the research carried out into Further Education;
- **Section IV – Key findings from Baseline Information Return (BIR):** this section contains the analysis of the DEL questionnaires sent to the 16 FE Colleges;

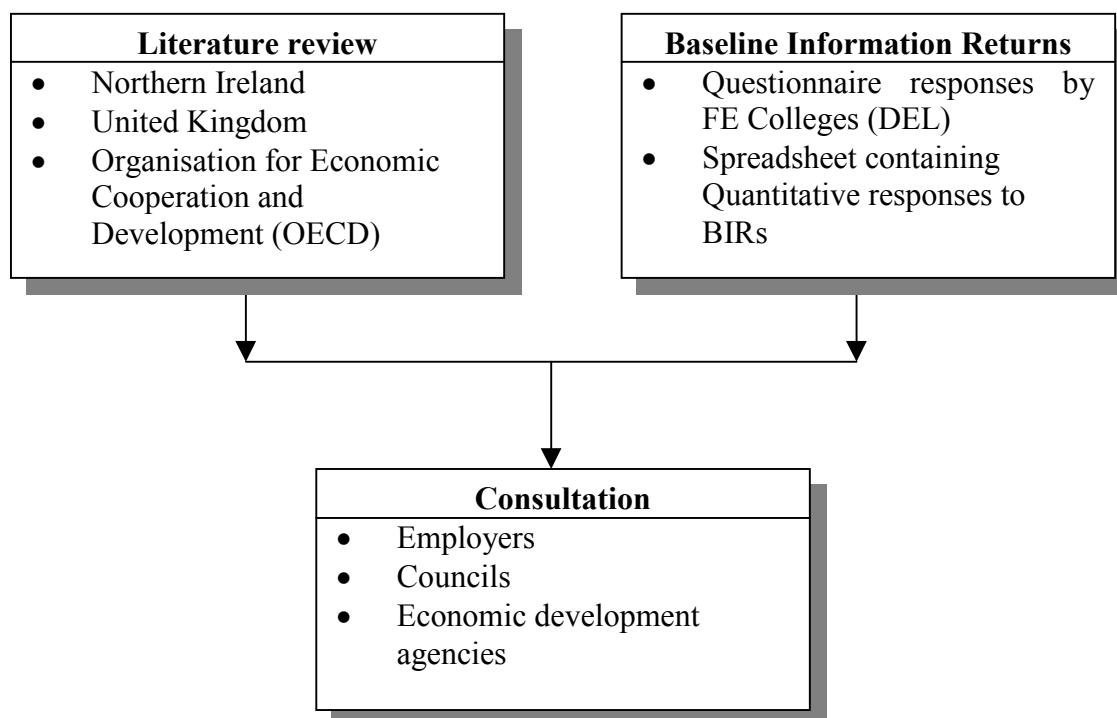
- **Consultation V – Consultation and baseline comparison:** this section summarises the outcomes of the consultation process and relates the findings to those of the 1999 Department of Education for Northern Ireland (DENI) report; *and*
- **Section VI – Conclusions and recommendations:** this section contains the conclusions and recommendations based on the existing literature, analysis of the College questionnaires and the outcomes of the consultation process.

II Methodology

Introduction

- 2.1 An overview of the methodological approach adopted in the study is provided in the Figure below.

Overview of Methodology



Literature review

- 2.2 An extensive literature search was undertaken incorporating a number of studies from Northern Ireland, Great Britain, Republic of Ireland and OECD countries. The output of this phase of the research was a literature review with a Northern Ireland focus.

Baseline Information Returns

- 2.3 DEL had recently administered questionnaires to the FE sector and a database constructed from the responses of FE Colleges was provided for the assignment. Along with copies of the completed questionnaires, the database helped highlight issues such as, College involvement in DEL programmes, contribution to local development strategies and the extent of College interaction with businesses.

Consultation

- 2.4 The overall focus of this report was to identify the extent to which Colleges were addressing their economic role and the skills gaps in the economy. Therefore relevant organisations were consulted on their links with the FE sector. In addition, a number of other strategically important sectors were included in the consultations as well as a number of development agencies and Borough / City Councils. Combined with the DENI (1999) baseline report on the economic role of FE, an understanding of how FE has progressed over the last three years formed.

III Literature review

Introduction

3.1 This literature review takes the following structure:

- The importance of FE for economic development;
- Skills demand in Northern Ireland;
- FE's impact on the individual; and
- Examples of FE good practice in economic development.

The importance of FE for economic development

3.2 There is reasonably strong empirical evidence that high standards of education and training are a prerequisite for high and sustained levels of economic growth. For example:

“Countries and communities that have developed and prospered have been those with a well structured education system that was open and accessible to high proportions of their populations.” Carr (2001)

3.3 Many reviews (see Sianesi and Van Reenen, 2000, for a summary of previous work) have found compelling evidence that human capital increases productivity. Therefore education is actually productivity enhancing rather than just a device that individuals use to signal their level of ability to an employer. Furthermore, the OECD (2002) found a relationship between the level of education and labour force participation rates. They report that, compared to those with a below upper secondary education, those with an upper secondary or post-secondary non-tertiary education had a higher labour force participation rate of 11 or 20 percentage points (for males and females aged 25 to 64).

3.4 In addition, there is an argument, that it is *quality* not necessarily *quantity* of education that is important. For example, Prof. Alison Wolf (2002 and 2003) shows how the proportion of the population (in the UK) attaining qualifications has risen. However she emphasises that to reach even higher and sustainable rates of growth and productivity, there needs to be improvement in the quality of education. Sianesi and Van Reenen (2000) noted that the type of education, its quality and also the efficiency with which investment in education is allocated all matter for growth.

3.5 Focusing on FE, reports by the Further Education Development Agency (FEDA), for example James and Clarke (1997) and James (1998), highlight the contribution of further education to local economic development in England and Wales (discussed below).

- 3.6 James and Clark (1997) reported the results of questionnaire returns², from 102 Colleges in England and Wales. In terms of College activity, they summarised the major contributions that Colleges were already making (see Table below).

Summary of major contributions made by FE Colleges

Area	Tasks
Skills	Aiding the labour force, including the unemployed, to acquire higher levels of skill
Employment	Helping the unemployed to access jobs, and contributing to in-company human resources development activity
Small firms	Consultancy, staff and management training, business growth programmes, and networking activities
Technology	Applying innovation and training in the usages and transfers of new technologies
Leisure, tourism and cultural industries	Providing training in these fields of employment, often linked to College-based sites and facilities
Urban regeneration	Employment and enterprise initiatives within regeneration areas and community development activity
Business retention	Consultancy and training to help firms remain competitive and retain jobs
Inward investment	Part of the 'landing net' and after-care services
Productivity	Productivity, including applications of new processes and technologies
Economic expansion	Providing support to new industries and companies
Town centre	Providing services integrated with other town centre agencies

Source: James and Clark (1997)

Note: Sample size = 102 Colleges

- 3.7 Focusing on Northern Ireland, PwC were commissioned by DENI in 1999, to conduct a study on the links between the output of the FE sector and the needs of the Northern Ireland Economy. It also contained an analysis of future development for the sector, which made recommendations for the FE sector to adopt. Within the DENI (1999) baseline report, a number of good practices and successful approaches in other countries were reported to exist to some degree in Northern Ireland. The Box overleaf describes these approaches.

² The questionnaires were split into the following 8 sections: Section 1: Your College and the local and regional economy, Section 2: Your FE College in the local economy, Section 3: Economic development and regeneration in your area, Section 4: The FE College and local economic development, Section 5: The FE College and local / regional leadership / partnership, Section 6: Employers and the FE sector, Section 7: Looking ahead..., Section 8: For Employer Governors ONLY.

Successful approaches in Northern Ireland

- Effective strategic linkages between Colleges and Government agencies.
- Strong recognition and endorsement of the vocational route among key stakeholders.
- Clarity and focus in terms of the strategic aims and objectives of FE institutions.
- Provision of training which is focused on the specific training needs of individual employers.
- A strong focus of provision on learning facilitated by ICT.
- Colleges adopting a market facing and flexible approach, offering open / distance and work-based learning, actively recruiting overseas, and developing activities outside their immediate catchment area.
- Individual Colleges or their representative bodies engaging in focused marketing strategies with a high media profile.
- The development of Centres of Excellence within Colleges which have developed particular areas of expertise.
- Colleges capitalising on appropriate national developments such as the University for Industry.

Summary

- Evidence suggests that higher levels of education can increase productivity and labour force participation rates;
- There has been an element of revisionism recently focusing on quality, not quantity of educational provision as research has suggested that it can improve, among other things, labour market participation; and
- Evidence exists to suggest that FE Colleges already make major contributions to economic development within Northern Ireland.

Skills demand in Northern Ireland

Generic skills

- 3.8 There is evidence from existing literature that there is a shortage of generic / softer skills (transferable skills that can be used across occupational groups) within Northern Ireland.

- 3.9 DENI (1999) found that a generic skills gap existed in Northern Ireland. Fifteen percent of employers with younger employees reported that there was a gap between the skills their younger employees possessed and the skills they needed to meet their current business objectives. More specifically, customer handling skills (57%), general communication skills (55%) and team working skills (44%) were the main areas where employers reported a skills gap to exist.
- 3.10 The Table below gives the results of PwC's 2002 survey of 300 private services firms conducted for our Annual Economic Review and Prospects. Firms were asked to rate how important the skills listed were to their business. The Table compares the *importance* and *availability* of key skills within Northern Ireland firms. Customer handling and teamwork are the most important skills. These results exactly mirror our previous year's results. In terms of availability, the least available skills were problem solving and management.

Skills gap in Northern Ireland firms

	Importance	Availability
Customer handling skills	8.5	5.4
Teamwork skills	8.2	5.5
Numeracy skills	8.0	6.0
Communications skills	8.0	5.7
Management skills	7.9	5.2
Literacy skills	7.7	6.0
Practical skills	7.6	5.6
Problem solving skills	7.6	5.2
Interpersonal skills	7.3	5.6
Computer literacy and IT	7.1	5.8

Note: the figures relate to an arithmetic average of 300 private services firms

- 3.11 In a separate survey in 2002, this time for BBC Northern Ireland's Business Day, carried out by PwC, approximately 500 businesses were asked if the education system was delivering the skills that businesses needed with regards three areas. In terms of educational qualifications, 70.9% of businesses agreed that it was. However, in relation to technical or vocational skills, only 59.5% of businesses thought they were serving businesses. Furthermore, 52.4% of businesses thought that the education system served business in terms of business readiness skills.
- 3.12 These findings are supported by Murnane (2003) and Wolf (2003). Murnane (2003) argues that instead of training people for a specific role, which may not be there when the person leaves FE, the focus should be on teaching cognitive skills and how to apply them in solving problems effectively. This was reinforced by Wolf (2003) who reported that at levels below professional / sub-professional, the proportion of the workforce, whose jobs require complex specific skills, had been declining. It was also reported that the pay-off to vocational qualifications is on average poor, if the job is not related to technical area studied.

- 3.13 Keep and Mayhew (1999) state that in the last decade, UK conceptions of what comprises skills have shifted from hard, technical expertise towards softer interpersonal capabilities. Furthermore, in the case of transferable skills the labour market is not fully competitive. Firms that provide training will set the wage of the trainee at below the value of their marginal product in order to recoup costs. In other words, the firm will not pay the employee the value of their output. Instead they will pay an amount that is below the employee's worth, so that they can recover the cost of the training. By training an employee in firm specific skills the employee is unlikely to have gained significant transferable skills. Therefore the firm will experience most of the benefits from the training. In terms of general skills, it is unable to do this. The skills that the employee would gain from the training would be highly transferable between jobs. Consequently the employee would be more employable and more likely to move between jobs. Therefore the firm will not invest in them and the market will have failed. As a result, this supports a role of government intervention.

Sector specific skills

- 3.14 The Northern Ireland Skills Task Force was established in early 1999 to advise government on issues relating to the supply of, and demand for, skills in the Northern Ireland labour market. The Skills Task Force remit is: to advise the Department for Employment and Learning on strategy to meet the skills needs of the Northern Ireland economy, the role of the Sector Training Councils, and its labour market research programme, in order to assist in targeting the allocation of education and training resources.
- 3.15 The Priority Skills Unit at the Northern Ireland Economic Research Centre was established by DEL as a centre of excellence for examining in detail, skills issues in priority skills areas (defined as those areas where a shortage of skills could act as a constraint to the growth of the Northern Ireland economy). The principal role of the Priority Skills Unit is to provide the Skills Task Force with a detailed analysis of the current and future supply/demand balance for skills in priority areas. Reports to date have covered the following sectors:
- IT
 - Electronic Engineering
 - Mechanical Engineering
 - Tourism and Hospitality³
 - IT Revisited

- Construction (forthcoming - late 2003).
- 3.16 This forecasting programme complements the “Northern Ireland Skills Monitoring Survey 2000” (published 2001) which assessed current skills needs among private sector employers; the Skills Monitoring Survey 2002 (published June 2003) has been extended to the public sector. The Skills Unit in DEL’s Research and Evaluation Branch manages these surveys with data collection undertaken by the Central Survey Unit, NI Statistics Research Agency.
- 3.17 In addition, *InterTradeIreland* (2001) highlighted an additional 2 sectors. In total there are 7 sectors in Northern Ireland which are reported to have been experiencing skills shortages⁴:
- High-tech manufacturing; and
 - Financial and business services.
- 3.18 The Box overleaf presents a brief summary of the key findings contained in the NIERC sectoral studies.

³ by McIvor Consulting

⁴ College activity in terms of the number of students enrolled has been skewed toward the priority skills areas (IT, electronic and mechanical engineering, construction and hospitality). FE provision in these areas has steadily increased since the late 1990s, suggesting FE has responded to industry’s needs. In some sectors, growth has been particularly marked, e.g. IT, in which enrolments increased by over 150% between 1996 and 2001, and mechanical engineering in which enrolments increased by 40% over the same period. In addition, the proportion of enrolments on priority skills areas has increased from 22% in 1996 to 35% in 2001. The results of this increase in FE enrolments in priority skills areas may take a few years to take affect. However there is no evidence to suggest that higher level courses have experienced greater growth. Although, it is noteworthy that courses with no associated NVQ level have experienced a significant decline in both enrolments and outcomes. The evidence indicates that there has not been any clear skewing of participation in FE towards higher-level courses. However, it is possible that the drive to widen access and increase participation in FE, which is likely to be in lower level courses, may mask the increases achieved in the participation in higher level courses.

Key findings from NIERC sectoral studies

Information Technology: NIERC published its study of the Northern Ireland labour market for IT skills in 2000. It found that recruitment of graduate project leaders and project / strategic planners posed the greatest difficulties. As a result of these shortages almost 50% of firms reported that their ability to develop new products was severely impeded. However, the analysis did not find significant skills shortages for recently graduated staff.

Electronic Engineering: The research on the Electronic Engineering sector (NIERC 2001) found that demand for electronic engineering skills was very high with unfilled vacancies at all levels, particularly for technicians and professional engineers. It found that as a result there was a high level of competition for staff between firms. This was likely to have caused wage inflation resulting in smaller companies experiencing particular difficulties in recruitment and / or retainment of staff.

Mechanical Engineering: NIERC (2002) found that, compared to either the electronics or IT sectors, there appeared to be a significantly lower likelihood that performance levels within the mechanical engineering industry would be constrained as a result of unfilled vacancies. The highest rate of shortage was found at technician level. However the small size of the group suggested that the gap could be bridged by relatively small increases in the supply of qualified labour. Demand and supply projections undertaken by NIERC suggested that it was unlikely that Northern Ireland would experience graduate level shortages. Shortages were forecast for technician level, however it was reported that a 'ramping up' of level 3 education and training provision would be one potential response.

Summary

- Due to a number of factors the skill needs of employees are changing which has implications for FE;
- Surveys have found evidence of a generic skills gap in Northern Ireland;
- Evidence suggests that the focus of teaching should be on cognitive skills and how to apply them in solving problems effectively, with reduced focus on job-specific skills;
- Firms will not provide sufficient training in general skills;
- The evidence suggests that the skills gaps existing within the Northern Ireland economy are actually larger at the technician level (FE) than at the graduate level (HE) for electrical engineering and to a lesser extent to mechanical engineering (see the Summary table below);

Skill shortages evident in three of the priority skill areas

Sector	Skill shortages	Skill shortages relevant for FE (i.e. technician level)
Information Technology	✓	✓
Electronic Engineering	✓✓	✓✓✓
Mechanical Engineering	✓	✓✓

Note: ✓✓✓ = significant amount of supporting empirical evidence
 ✓✓ = some supporting empirical evidence
 ✓ = small amount of supporting empirical evidence

- These skills shortages are resulting in unfilled vacancies and wage inflation; and
- The number of students enrolling in these priority skills subjects at FE has increased substantially since the late 1990s.

FE's impact on the individual

- 3.19 It is accepted that well-educated individuals tend to fare better than others in the labour market. In particular, studies have found that better educated individuals tend to earn more in employment, are less likely to be unemployed and are more likely to receive some form of training whilst in employment (see Armstrong 1996). The Table overleaf shows the gross weekly earnings by Skills level in Northern Ireland for April 2002.

Gross weekly earnings by skills level (2002)

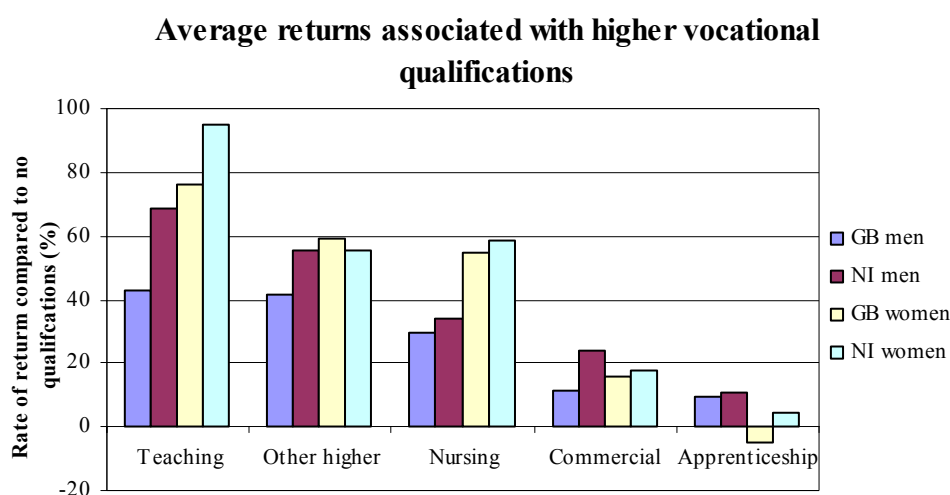
	Skill level 1	Skill level 2	Skill level 3	Skill level 4
Men	£273.5	£309.9	£430.5	£645.8
Women	£217.3	£252.7	£403.0	£511.2
All	£259.9	£280.2	£422.7	£592.1

Source: NI New Earnings Survey

Note: Skill level 1: competence associated with a general education
 Skill level 2: general education and work related training or work experience
 Skill level 3: post compulsory education but not to degree level
 Skill level 4: degree or equivalent period of relevant work experience

- 3.20 It can be seen that as the skills level increases so too does the average gross weekly earnings for men and women. Stepping up to higher skill levels therefore is associated with larger increases in earnings. However it is worth noting that some of this pattern could be a reflection of prior ability.

- 3.21 Harmon and Walker (2000) conducted a study to estimate the average returns to education in Northern Ireland compared to Great Britain. They estimated that on average, an extra year of general education in Northern Ireland adds 8% to male earnings and 12% to female earnings (compared to 6% and 10% to Great British men and women respectively). They also found that the wage penalty associated with having no qualifications was significantly larger in Northern Ireland than in GB.
- 3.22 In terms of the rates of return for vocational qualifications compared to those with no qualifications (see the Chart below), the Northern Ireland rate was similar to that of GB, with the exception of teaching qualifications whose returns were higher in Northern Ireland.



Source: Harmon and Walker (2000)

- 3.23 Due to the high rate of return to education in Northern Ireland, in terms of additional earnings, Harmon and Walker (2000) highlighted that rational individuals would remain or return to education to capture the financial rewards. However the rate of return to post-compulsory education in Northern Ireland suggests that this is not the case. Instead the findings suggest that there may be an undersupply of education places or else there is a lack of demand by the population. Therefore, either Northern Ireland residents have different preferences than GB residents that make them less likely to invest in their own future or they find education more expensive or difficult to acquire. Assuming that preferences are similar between Northern Ireland and GB, Harmon and Walker (2000) assume that education is more difficult to acquire in Northern Ireland than in Great Britain. In which case, the best policy may be to encourage and offer higher levels of post compulsory education participation in Northern Ireland, particularly focused at those with low levels of qualifications (as their evidence suggested an oversupply of poorly qualified people in the NI labour market).

- 3.24 Harmon & Walker (2000) also studied whether education was productivity enhancing or merely a signal to employers about existing productivity. They found that the increase on earnings was largely accounted for by the increases in productivity arising from taking education rather than just using the qualification as a signal of natural ability.
- 3.25 Dearden et al. (2000a) measured the impact of specific qualifications on earnings in Britain, instead of estimating the impact of an individual's highest qualification (see Annex B for additional evidence on rates of return). They found that additional returns associated with academic qualifications, with no account for the time taken to acquire them, are typically higher than those associated with vocational qualifications at the same level (see the Table below).

Returns to qualifications

Qualification type	Male	Female
Academic		
O levels – GCSE	12-21%	10-19%
A levels	15-18%	18-23%
Degree	10-28%	21-26%
Vocational		
NVQ level 1-2 / BTEC First	Nil	Nil
NVQ level 3-5	6-9%	1-5%
C&G Craft	4-7%	Nil
C&G Advanced	7-10%	Nil
ONC / OND / BTEC National	7-12%	8%
HNC / HND	6-22%	3-12%

Source: Dearden et al. (2000a)

Note: The figures above are additive wage premiums. Therefore it is possible to estimate the expected return from various educational routes. For example a male that takes the pure academic route until graduating from HE, would expect to earn, at most, an extra 21% wage premiums (over a non-qualified male) from GCSE, an extra 18% from A-levels and 28% from a degree. Therefore he should expect an extra 67% wages than a male with no qualifications.

- 3.26 They found that generally lower level vocational qualifications do not yield significant economic returns for men or women.
- 3.27 The calculations set out in the Table below illustrate the potential wage premiums that students can expect from taking different routes through FE, using the estimates shown above by Dearden et al (2000a)⁵. It is worth noting that the scenarios, quantifying the returns to individuals, worked out in the tables below are based on existing research for Britain, not Northern Ireland.

⁵ The left hand column depicts the qualifications that an individual has when they enter FE. The second column from the left shows the wage premium that this individual is likely to receive, over and above the wages that an unqualified individual would earn. The remaining four columns show the wage premiums associated with each type of qualification represented.

Wage premiums associated with male FE activity

Enter with...	FE	Wage premium before entering FE	Wage premium associated with...			
			FE sector			HE sector
			NVQ Level		HNC / HND	Degree
			1 - 2	3 - 5		
Males						
No Qualifications		Nil	Nil	9%	31%	59%
GCSEs		21%	-	30%	52%	80%
Females						
No Qualifications		Nil	Nil	5%	17%	43%
GCSEs		19%	-	24%	36%	62%

Note: Wage premiums presented above are compared to the wages of an unqualified individual.

- 3.28 So for example, reading from left to right, a male entering FE with no qualifications will have no wage premium above an unqualified person. Reading to the right, if the individual gains an NVQ level 1 or 2, they are still unlikely to experience an extra wage premium. However if they then progress onto an NVQ level 3 to 5 course, they can expect to earn a wage premium of up to 9%. If the individual then decides to remain in FE and complete an HNC / HND course, he could expect a wage premium of up to 31% (compared to someone with no qualifications) and so on.
- 3.29 It is worth noting that there is no additional return for an individual having GCSEs and completing an FE course over an individual having no qualifications before completing the same course. Both individuals would expect, for example, an extra 9% wage premium if they completed an NVQ level 3-5 (if male). However the person with the GCSEs will already expect a further wage premium of 21% from the GCSEs.
- 3.30 The Tables overleaf show the level of attainment for two categories (general and occupational qualifications) combined with the wage premium estimates based on Dearden et al. (2000a).
- 3.31 The Qualifications and Curriculum Authority (QCA) is the national organisation responsible for the quality assurance of standards in education and training in England and Northern Ireland. One of the key roles of the QCA is to place qualifications into a National Qualifications Framework (NQF). The NQF has matched vocational qualifications to the equivalent standard of academic qualifications. It has established 6 levels of attainment in its framework. Looking at the Table below, we can see that at Foundation level / 1, GCSE grades D – G are equivalent to an NVQ level 1.

National Qualifications Framework (UK) combined with wage premium estimates

Levels of attainment	General qualifications	Occupational qualifications
Higher level / 5	Degree level	NVQ Level 5
Higher level / 4		NVQ Level 4
Advanced level / 3	AEAs / A level / AS	NVQ Level 3
Intermediate level / 2	GCSE grade A* - C	NVQ Level 2
Foundation level / 1	GCSE grade D – G	NVQ Level 1
Entry level	Entry level can provide a basis for progression to qualifications across the framework at foundation level.	

Source: QCA and Dearden et al. (2000a)

- 3.32 With this framework, the estimates of wage premiums associated with various academic and vocational qualifications from Dearden et al. (2000a), can be analysed. Looking at the Table below, it can be seen that the wage premiums for males associated with GCSE grade A*-C (12-21%) and their equivalent vocational qualification, NVQ level 2 (Nil), are different. This suggests that for qualifications at this level, wage premiums are higher for academic qualifications than for vocational qualifications.

National Qualifications Framework (UK) combined with wage premium estimates

Levels of attainment	Category of qualifications and expected wage premiums			
	General qualifications (Male)	General qualifications (Female)	Occupational qualifications (Male)	Occupational qualifications (Female)
Higher level / 5	10-28%	21-26%	6-9%	1-5%
Higher level / 4			6-9%	1-5%
Advanced level / 3	15-18%	18-23%	6-9%	1-5%
Intermediate level / 2	12-21%	10-19%	Nil	Nil
Foundation level / 1			Nil	Nil
Entry level	Entry level can provide a basis for progression to qualifications across the framework at foundation level.			

Source: QCA and Dearden et al. (2000a)

Note: Dearden et al. (2000a) estimated the wage premiums from NVQ qualifications in two ranges (NVQ levels 1 –2 and NVQ levels 3 – 4). Therefore the premiums of 6% to 9% are the same for NVQ levels 3, 4 and 5.

- 3.33 The classifications above should be treated with a degree of caution. The official NQF does not acknowledge degrees as being at higher level / 4 or higher level / 5, however it is reasonable to assume that, based on course content and previous studies⁶, a degree can be considered at these levels.
- 3.34 The above table is a powerful tool when showing the gap in wage premiums between academic and vocational qualifications. For example, a female holding an NVQ level 5 can generally expect to earn wage premiums up to 5% more than if she had no qualifications. However if the same female held an A-level which is equivalent to an NVQ level 3, she would earn wage premiums of up to 23% more than if she had no qualifications.
- 3.35 A reason for this difference, may be because the FE sector in the UK and Northern Ireland, compared to other OECD countries has been viewed as low status, for example Keep and Mayhew (1999), Edwards (1998) and James (1998). As a result employers are not prepared to pay as large a wage premium to FE graduates as they are for HE graduates. Therefore the wage premium may not reflect the enhancement in productivity delivered by gaining the qualification.
- 3.36 Edwards (1998) argues that academic education has traditionally been associated with developing self-reliance and a questioning, critical, habit of mind in those heading for professional and managerial occupations. Vocational education on the other hand has been perceived much more as the acquisition of established skills through instruction. Bailey (1999) states that the narrow vocational training is no longer adequate for the contemporary workforce and that workforce preparation therefore needs to include a strong academic foundation. Occupational students need to have a strong academic foundation and a better understanding of the academic material, which can be achieved if it is learned in the context provided by the occupational setting.

⁶ Conlon (2001), matches academic and vocational qualifications when studying the differential in earnings premia between academically and vocationally trained men. He acknowledges first degrees as being equivalent to an NVQ level 4, and in terms of postgraduate diplomas and higher degrees, he classifies them as being equivalent to NVQ level 5. Furthermore Dearden et al. (2000b) classify diplomas in HE as being equivalent to NVQ level 4, and classify first degrees and higher degrees as the equivalent to NVQ level 5.

- 3.37 However, Wolf (2003) presented evidence that vocational graduates who were employed in “matched” occupations related to the vocational course of study taken at school, earned more than workers who followed a general academic curriculum. Analysing monthly earnings and accounting for work experience, years of schooling and attainment she found that workers in “matched” occupations earned significantly more than vocationally educated workers in “non-matched” occupations and more than workers who followed a general academic curriculum. However this finding may be influenced somewhat by the fact that FE students have to make their career choice during their late teens and early to mid twenties. For some individuals this may not remain their choice of career once they graduate. Therefore these individuals eventually enter the labour market with specific skills that they do not use in their career. As a result, they find themselves in employment with unneeded skills, which their employer is unwilling to pay for.

Summary

- Better educated individuals tend to earn more in employment, are less likely to be unemployed and are more likely to receive some form of training whilst in employment;
- Evidence suggests that lower level vocational qualifications do not yield significant economic returns;
- There is compelling evidence that the rewards from an academic route are, on average, significantly more than a vocational route;
- Vocational education in the UK is often perceived as being low-status when compared to academic education; and
- Research suggests that vocationally trained workers who enter “matched” occupations can earn significantly more than workers who followed an academic route.

Examples of FE good practice in economic development

- 3.38 James and Clark (1997) state that there is no single prescription for FE College involvement, which can be applied nationally. In some areas inward investment and industrial development are the leading components of economic development, whereas in others, urban regeneration is a key focus. It is obvious that the private sector is an essential ingredient for economic development. Although James and Clark (1997) state that there is enormous difficulty in engaging private sector participation in many aspects of the processes, especially the preliminary or preparatory work.

Meeting the skill needs of industry

Corr (2001) documents an example of Galway-Mayo Institute of Technology (GMIT) adapting to the needs of industry. It responded to an initiative from a government task force to address major skills shortages in the electronics and information technology industries. GMIT established a special 18-month sandwich course to prepare students for technician careers in high technology industry. All participants were guaranteed 30 weeks paid structured placement in industry. The companies were consulted on course content and invited to participate in the selection of students for the course. The program involved close working partnerships between the institute and local companies. Because of the work-based nature of the course, institute staff was in constant contact with companies to monitor and evaluate in-company placements.

Corr (2001) believes that there is still much to do to improve the contribution that Irish technology institutions can make to the drive for economic growth. He feels that they should concentrate on the following efforts:

- Continue the expansion of provision of technological education at all levels;
- Search out and adapt to specialist areas and / or promising niches within an across a range of technologies;
- Collaborate with industry and others in carrying out applied research;
- Undertake more focused training in collaboration with industry;
- Facilitate lifelong learning;
- Encourage innovation in product and process development and in management systems and techniques;
- Encourage innovation in developing enterprises;
- Focus specifically on the needs of SMEs; and
- Encourage, through training and education, more export among SMEs, not only through procedures and technological know-how but also through language learning.

Note: Although the Institutes of Technology in the Republic of Ireland are classified as vocational education providers, they operate at the HE level, providing degree courses. Therefore they are not directly comparable to the FE sector in NI. Nevertheless, there are still more general activities that are of interest in this study.

- 3.39 Research also suggests that the FE sector has a major role to play in assisting Small and Medium Enterprises (SMEs). James and Clark (1997) found, through consultations with a range of representatives from outside the FE sector, that new SMEs are created continually in the form of community businesses, community enterprises, and cultural industries. They found that the FE sector's community education experience positions the sector to help these up-and-coming businesses. Colleges, working in partnership with other economic regeneration agents, provide participants in the local economy with greater access to resources for community and economic development. They conclude that, FE Colleges have the ability to work with a range of small employers and are good at linking with groups that are disadvantaged and creating a ladder for them into the wider labour market.
- 3.40 Best (2000) highlights the potential that can arise from close collaboration between FE and firms. Among many other factors, Best points out the opportunities of networking and skills formation for firms. SMEs need to work within a network to transfer knowledge and experience. Without this, breakthrough innovation may occur in research centres and new high-tech firms may well emerge in science parks, but they will not be part of regional growth dynamics. Policies designed to enhance the 'knowledge-driven economy' must be grounded in what companies actually do and what capabilities they actually have, individually and as part of regional systems, and what capabilities they can develop.
- "The potential is great for collaboration in skill formation between companies, existing and emerging, and the Colleges of FE. These Colleges enjoy little guidance in manpower development planning. They are, however, aware that their counterparts in the ROI have played a major role in advancing technology management capability, new business models, and skill formation that have enabled sustained growth" Best (2000).*
- 3.41 DENI (1999) found that there were considerable examples of strong linkages between individual Colleges and local employers in the private, public and community / voluntary sector within Northern Ireland. However, many of these good relationships between Colleges and employers had been forged on a bilateral basis, i.e. between individual Colleges and local employers. Therefore there had been only a limited amount of co-ordination within the sector, and integration with mainstream economic development agencies.
- 3.42 The FE sector is also well placed to encourage lifelong learning, prepare individuals for self-employment and entrepreneurship (see James, 1999). In particular, providing vocational courses, which may offer people the opportunity to start their own business or take on contract work. However the ability to do this will depend on the staff and the enterprise culture within the College. Staff with business experience would be invaluable, as would those with personal development activities and strong links with local business and development agencies.

- 3.43 Discussing the role of FE colleges in economic development, James (1999) highlighted that regional development, New Deal, Welfare to Work, University for Industry and Lifelong Learning are all seen as areas bringing major opportunities for FE. The focus by Government in recent years on Lifelong Learning for all has extended FE's involvement in economic development.
- 3.44 The following framework in the Table below (James, 1998) could prove useful for the FE sector. It was designed as a starting point for defining the attributes of a world-class College.

The attributes of a world – class College

Benchmark focus	Elements
Business strategy	<ul style="list-style-type: none"> • Vision and leadership • Quality mindset • New technology • Productivity gains
Delivery	<ul style="list-style-type: none"> • Flexible accommodation • Pull scheduling (i.e. demand not inventory led) • Customer orientation • Resources ahead of customer expectation • Just-in-time supply
Quality	<ul style="list-style-type: none"> • External benchmarking • Accreditation processes • Qualification durability
Design	<ul style="list-style-type: none"> • Lead times • Concurrent design • Customer input
Employee management	<ul style="list-style-type: none"> • Shared vision • Continuous improvement strategies • Training and development
Financing growth	<ul style="list-style-type: none"> • Added value per employee • Return on assets • Gearing ratio
Volume	<ul style="list-style-type: none"> • Increasing top line (sales) • Increasing market share • Increasing number of customers
Competitive advantage	<ul style="list-style-type: none"> • Price • Quality • Cycle times • Reliability • Customisation
Networking	<ul style="list-style-type: none"> • For learning advantage • For organisational advantage

Source: James (1998)

Summary

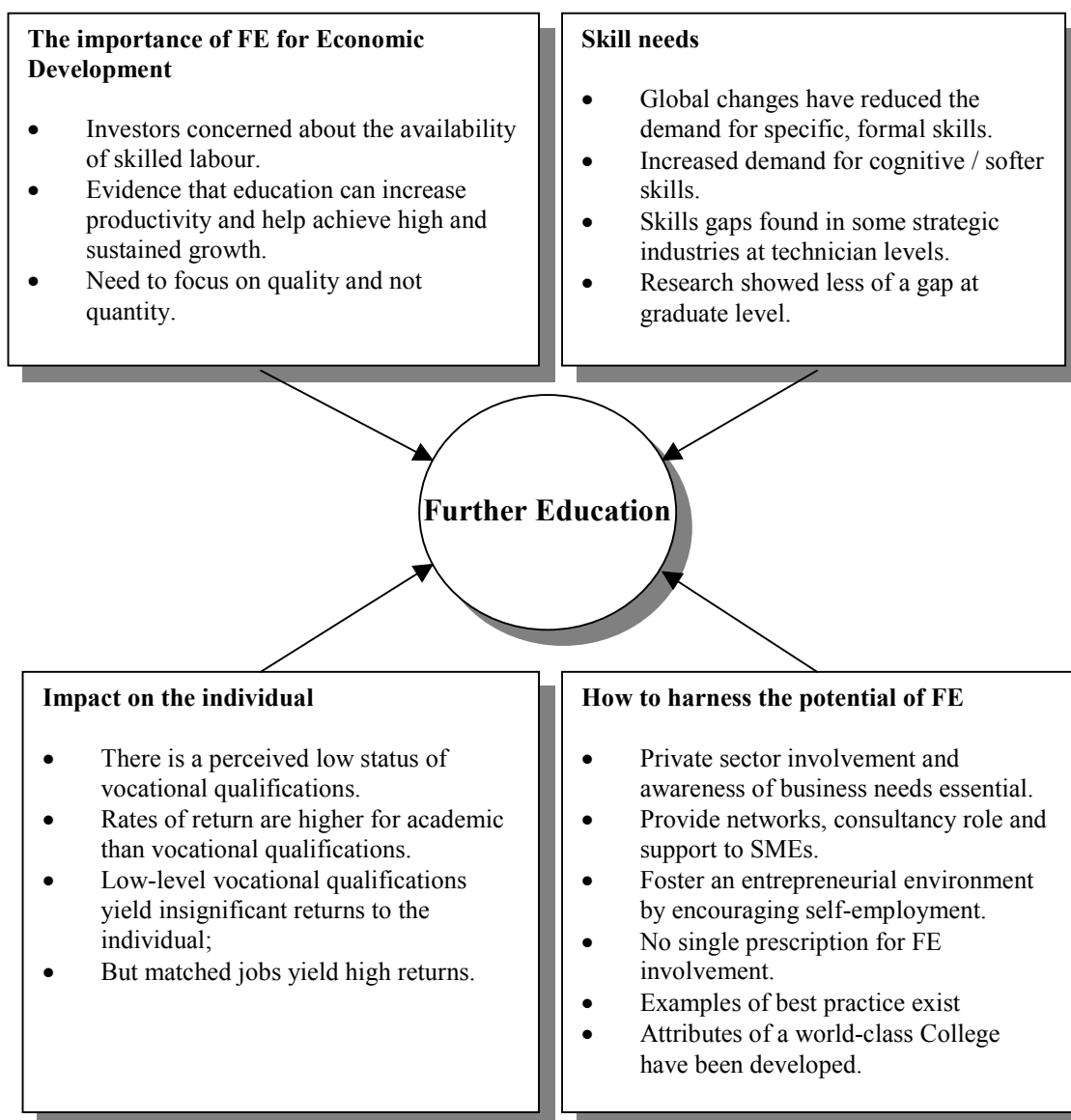
- There is no single prescription for FE involvement in economic development, however certain guidelines have been established to inform economic development decision makers;

- The private sector is an essential ingredient for economic development. Meeting the skills needs of industry requires close collaboration between FE, industry and economic development agencies;
- There is a great potential for cooperation between the FE sector in Northern Ireland and SMEs, in order to supply the correct skills, foster knowledge and skills transfers between firms, and to distribute R&D;
- The FE sector is well placed to encourage life long learning and to prepare people for self-employment and entrepreneurship; and
- Various successful policies exist in Northern Ireland as highlighted by DENI 1999. The future for the sector is to build upon these relationships / strategies in order to fully meet its economic role.

Conclusions

- 3.45 Due to a range of factors the education sector has found its role within the economy growing. This literature review has examined research that has identified skills needs existing within a number of strategically important sectors in the Northern Ireland economy. As a result the recognition of FE's contribution to economic development has risen. Evidence has also identified that firms are now demanding softer / generic skills from their employees, in contrast to the traditional formal definition of skills.
- 3.46 Despite the fact that firms have identified these skills as being important, on average they do not provide commensurate rates of return comparable to an equivalent academic qualification. Research has demonstrated that the lower-level vocational qualifications do not yield any significant returns, though they probably provide a high level of the general skills demanded by industry. This is likely to be due to the fact that vocational qualifications still seem to have a low status level attached to them. However there is evidence to suggest that if individuals work in areas well matched to their qualification they can experience a significant pay off.
- 3.47 It is now widely acknowledged that private sector interaction is an essential requirement in FE activities in order to help design a curriculum, provide student and staff placement, and to improve the FE response to industry and industry response to FE. In addition the FE sector needs to develop closer links with SMEs and help develop a culture of entrepreneurship, to encourage people into self-employment. However as reported, there is no single prescription for FE involvement in the economy that can be applied to each College / country.
- 3.48 By way of summary, the key messages from the literature are summarised in the Figure overleaf. The extent to which FE is responding to these issues will be explored later in the report.

Key findings from existing literature



IV Key findings from baseline information returns

Introduction

- 4.1 A questionnaire was designed to quantify the support provided by FE Colleges to economic development. All 16 FE Colleges completed and returned the questionnaire, copies of which were made available for this study. It had two overarching aims:
- To identify the areas where Colleges as a whole make a contribution to economic development; and
 - How this has increased since Incorporation in 1998?
- 4.2 The College questionnaire can be split into three separate topic areas:
- College focus on economic development;
 - Links with industry; and
 - Staff awareness and links with schools.

Key findings

College focus on economic development

- 4.3 The key findings included:
- **College development plans included a strategy to support economic development:** all but one College reported that their College development plan included a strategy to support economic development and that their economic support strategy was either implemented or on target for implementation. They reported liaising with a variety of key stakeholders in drawing up the plan, which generally included local industry, employer and sector organisations, local enterprise agencies, trade unions, DEL and students and learners;
 - **Mechanisms to monitor achievement:** all Colleges (except one) reported that they had identified targets and associated mechanisms to monitor achievement. Examples provided by the Colleges included:
 - the volume and type of training carried out with local companies;
 - involvement in community and industry initiatives;
 - ongoing evaluations including feedback from clients; and

- the Department's FELS (Further Education Leavers Survey) was also used as a means to monitor economic development;
- **Involvement in their Local Strategy Partnership (LSP):** focusing on a 'joined up' or all-inclusive government, all of the Colleges stated that they have had some involvement in their LSP or with other economic bodies of which the most common identified were LEDU, IDB, CITB and local Borough Councils;
- **Provision of DETI / DEL schemes:** all Colleges reported running schemes such as Job Skills / New Deal programmes. In general most Colleges offered 3 DETI / DEL schemes. Examples included Learn Direct, Bridge to Employment, Leapfrog and LEA. These schemes were provided in a wide range of vocational areas for a wide range of participants;
- **Benefits from DEL's economic development policy:** most Colleges reported that benefits had occurred from DEL's economic development policy instruments (for example the Strategic Investment and Skills Fund initiative, higher education allocations, Partnership Fund etc). Examples of such benefits included:
 - greater freedom and flexibility to deal with training issues;
 - Colleges becoming more business orientated since incorporation;
 - additional monies aiding development; and
 - the Strategic Investment Fund, Skills Fund and the Partnership Fund were also found to be useful.
- **Greater focus on supporting economic development:** the vast majority of the Colleges stated that they had changed their focus on supporting economic development since incorporation. Supporting industry and the economy was now the main thrust of the College all year round. Other information provided highlighted that:
 - geographical factors can shape a College's economic focus (i.e. the economic structure and associated employment opportunities in a locality will affect student demand for courses, forcing colleges to follow suit);
 - departmental funds should be allocated on an all-year round basis (i.e. phased payments rather than a lump sum); and
 - the sector requires a generic marketing & business development strategy.

Links with Industry

4.4 The key findings included:

- **Working relationships with all sectors:** all Colleges reported working with a number of different economic sectors with the six key skill areas for economic growth (ICT, Software Engineering, Construction, Hospitality & Tourism, Engineering, Manufacturing Engineering noted in the previous chapter) being prevalent;
- **Working relationships with firms:** most of the Colleges engaged with companies of different employee size. When asked how they identify organisations or businesses with which they work most Colleges reported a variety of methods including marketing, networking, contact with local industry, Government Departments & relevant bodies, and partnership;
- **Maintaining relationships with firms:** the Colleges highlighted different forms of maintaining the above relationships including: marketing, regular contact with clients, focus groups, providing an appraisal system and advocating a high quality when supplying the service and maintaining good public relations;
- **A dedicated business unit:** the majority of Colleges reported having a dedicated unit providing for at least one of the 4 different services, i.e. identified entry / enquiry point, needs analysis, contracting system for consulting activities, and other Measures. In terms of support for SMEs, all but 3 Colleges provided at least one form of service listed;
- **Establishing direct links:** most of the Colleges surveyed used placement, direct training, and two-way use of facilities between the College and the company in order to establish direct links;
- **Support for business innovation:** all the Colleges that responded provided examples of support for business innovation and / or applied research and development;
- **Differences in business needs:** when asked what differences in business needs have become most apparent, there were a number of common themes identified by the Colleges. These included comments such as:
 - customised training focusing on specific needs;
 - more flexibility to meet client needs;
 - changes in mode of attendance;
 - increased demands from the business sector;

- benchmarking – monitoring standards;
 - increased demand for shorter courses;
 - increased demand for work-based delivery of work-based NVQs; and
 - increased demand in the use of ICT.
- **Industry involvement in designing the curriculum:** the majority of Colleges responded that “all departments consult regularly with employers and other partners on curriculum where relevant”. The remainder stated that they have “some dialogue with employers and other bodies about nature of courses, but this is limited to for example, specific vocational areas, or one off exercises”;
 - **Business related services:** the majority of Colleges reported providing distance learning for companies, continuous work-based learning, short bespoke courses for businesses in College, and short bespoke courses for businesses at their business; and
 - **Improved response between FE and industry:** nearly all Colleges noted that steps have been taken which have improved the response between themselves and industry. Examples included:
 - College and business partnerships;
 - business units;
 - placing senior staff on councils;
 - development of centres of excellence;
 - projects supported by DEL;
 - lecturers into industry schemes; and
 - appointed business development managers.

Staff awareness and links with schools

4.5 The key findings included:

- **Qualifications of staff teaching vocational courses:** not all Colleges were able to provide information. For those that had the information available, the majority of full-time staff were qualified at least to degree level. The responses also showed that a high number of staff had relevant industrial or business experience, with a smaller proportion being post-graduates;

- **Lecturers into Industry scheme:** Most Colleges reported being involved in the scheme. The wide range of placements, in most cases, involved the six key skill subject areas. In addition the majority of Colleges were able to list further activities used to enhance lecturers' skills; and
- **Links with local schools:** All Colleges reported having links with local schools in terms of providing a learning environment for school children with a particular emphasis on IT and IT related subjects. In addition, Colleges reported that they also offered various services such as careers guidance, focus days, vocational qualifications, mock interviews, and special needs services to name a few.

Conclusion

4.6 The questionnaire was designed to address two questions:

- in what areas do Colleges as a whole make a contribution to economic development? and
- how has this increased since Incorporation in 1998?

4.7 In conclusion, all Colleges have become more focused on supporting economic development since Incorporation. Their focus has shifted from solely training issues to supporting industry and the needs of the economy. These Colleges have also incorporated a strategy, to support economic development, into their College development plan. All Colleges reported having liaised with a variety of key stakeholders and developed mechanisms to monitor economic development. All Colleges had some involvement in their LSP and all reported running DETI / DEL schemes in a wide range of vocational areas. Only 3 Colleges did not feel there had been benefits from the department's economic development policy instruments.

4.8 It appears that links with industry are evident and in most cases strong, with all Colleges working within and focusing on the six key-skill sectors for economic growth. In addition Colleges have adopted a wide variety of methods to maintain relationships with businesses of all sizes and all sectors. All Colleges supplied examples of business support and applied research and development along with at least some degree of consultation with employers on curriculum content. In addition most Colleges reported that steps had been taken to improve FE response to industry, and industry response to FE.

4.9 In relation to the examples of good practice highlighted in the literature review, most of the FE colleges seem to have adopted many of the best practices indicators. Reported college activity suggests that the FE sector is addressing its economic role. Not only have they realised their role in supporting local industry, they have in most cases contributed to local strategy plans, established units to help SMEs, encouraged lecturers to become more involved in industry, and generally become more pro active. However a degree caution must be expressed due to the self-assessment nature of the BIRs.

V Consultation and baseline comparison

Introduction

- 5.1 Each consultation was conducted via telephone and based on the topic list included in Annex A. The main focus of the consultation exercise was with employer representatives from Northern Ireland although this was supplemented with views from development agencies and Borough Councils. In total 21 key informant interviews were conducted.
- 5.2 As set out in the literature review (Section III) there are a number of sectors in the Northern Ireland economy that have been identified as priority industries by the Northern Ireland Skills Task Force and *IntertradeIreland* (2001). In addition, consultation was also carried out with those industry bodies / training bodies representing other sectors which were not specifically identified as experiencing skills shortages by the Priority Skills Unit, but which nevertheless are important to the economy. While this does not represent a comprehensive industry consultation exercise, which would have been outside the scope of this study, it does provide some useful insights into the views of the business community. In addition, it helps cross check the positive views that arose from the college BIRs. The sectors included in the consultation exercise include:
- Information Technology;
 - Electronic Engineering;
 - Mechanical Engineering;
 - Construction;
 - Tourism;
 - Science;
 - Health;
 - Textiles;
 - Finance;
 - Manufacturing; and
 - Food.

- 5.3 The consultation exercise was also used to canvas the views of relevant key informants, development agencies and Borough Councils (see Annex A). They expressed their views on FE's links with industry but focused more on FE's role in attracting inward investment, supporting SMEs and their involvement in strategic planning.

Baseline findings

- 5.4 A previous PWC baseline report (carried out in 1999) suggested a 'mixed bag' in terms of existing links between the FE sector and the economy. It found that the sector exhibited a number of key strengths as well as a number of areas in which development was required. The key strengths identified were:

- **Strong linkages between individual Colleges and local employers in the private, public and community / voluntary sectors:** these linkages took a wide variety of forms, ranging from 'softer' linkages (e.g. provision of Jobskills and participation in Business-Education Partnership organisations), to 'harder' linkages (i.e. providing tailored, job-specific training for employers in the private public and / or voluntary / community sectors);
- **Addressing local skill needs:** there were a number of examples of individual subject areas in which the qualifications attained by students at Colleges were clearly aligned to the current and future needs of businesses and other employers in the local economy (e.g. IT, business services and engineering and technology);
- **Excellent Information and Communications Technology (ICT):** although there were local variations, a number of Colleges in NI had excellent ICT facilities. This was important in light of the key role of ICT in shaping future skill requirements. It also meant that the sector was well placed to benefit from national policy initiatives which have a strong ICT focus, such as the University for Industry (Ufi); and
- **Linkages into local communities:** many Colleges had strong linkages into local communities, and were accessible to particular groups of the population which, hitherto, had experienced educational, social or economic disadvantage.

- 5.5 In addition to these key strengths, there were a number of areas identified for improvement, including:

- **Lack of clarity:** the sector catered for 3 broad groups of students (vocational, academic and community / adult learning). Whilst this breadth in provision was identified in one sense as a strength, it also led to a certain lack of clarity about the sector's 'raison d'être', i.e. its central focus and key strategic aims and objectives;

- **Limited amount of co-ordination within the sector:** many of the good relationships between Colleges and employers had been forged ‘on the ground’ on a bilateral basis, i.e. between individual Colleges and local employers. Hitherto, there had been only a limited amount of co-ordination within the sector, and integration with mainstream economic development agencies;
- **Linkages between FE and industry:** there was a certain degree of ‘ad hoc’ in the relationships which existed between Colleges and employers, i.e. they had been developed and nurtured on a bilateral basis, and ‘in spite of’ the limited relationships with mainstream economic development agencies;
- **The role of FE in attracting inward investment:** the role of the FE sector in attracting inward investment could be significantly enhanced. Examples were cited of major inward investments having been attracted to certain locations close to a major College, and the College not having been consulted at all as part of the process. The report suggested that in order to overcome such problems, stronger relationships needed to be developed between the then Industrial Development Board (IDB) on the one hand, and individual Colleges and / or DENI on the other hand; and
- **Linkages between FE and the then DED agencies:** although there were some examples of linkages between Colleges and the other DED agencies (LEDU, IRTU and NITB), the overall finding was that they were limited, and could be improved. This was relevant, firstly, because of the importance of small firms (LEDU), technology / innovation (IRTU) and tourism (NITB) to the local economy and, secondly, because some Colleges have specific expertise in each of these areas.

Key findings from the consultation exercise

As part of this research project PwC conducted a further consultation with industry representatives, development agencies and Councils. While this consultation cannot be directly compared with the 1999 baseline assessment, the results can be used to identify, at a broad level, whether there have been changes in the perceptions of FE.

FE’s strategic links

5.6 The key findings from the consultation exercise can be split into a number of areas. The first set of findings relate to the FE sector’s strategic links with industry, development agencies and Councils. The key findings include:

- **Direct links with firms:** all the development agencies and councils cited many examples of links between the FE sector and industry. General answers included:

- Colleges see themselves as having a role in economic development and they now seem to have strategies in place to work with firms;
 - they are also trying to be flexible to help firms and tailor courses to suit their needs; and
 - Centres of Excellence have been set up in some FE Colleges to help SMEs, etc.
- **Contribution to skills development:** again each of the development agencies and councils consulted were able to cite a number of examples. These included programmes, training, and advice to firms, employees, and schools.
- 5.7 More specifically, the organisations consulted (including the industry bodies) were given a list of possible links and asked if any existed between the FE sector and industry. The results are presented in the Table below.

The existence and effectiveness of links between FE and industry

	Do the following links exist between your industry and FE?		If yes, is it...				
	Yes	No	Very ineffective (%)	Ineffective (%)	Neither effective or ineffective (%)	Effective (%)	Very effective (%)
Sponsored courses	10	6	0.0	0.0	42.9	28.6	28.6
Work based learning	14	2	0.0	0.0	12.5	87.5	0.0
Direct Training	13	3	0.0	0.0	25.0	62.5	12.5
Placements	16	0	0.0	0.0	11.1	66.7	22.2
Input into firms training process	7	9	0.0	0.0	33.3	66.7	0.0
Guidance on curriculum	9	7	0.0	0.0	14.3	71.4	14.3
Knowledge networks and R&D	7	8	0.0	0.0	0.0	75.0	25.0

- **Fairly strong linkages between FE and industry:** the majority of consultees reported that work based learning, direct training and placements existed between industry and FE. However there was less of an incidence of sponsored courses and guidance on the curriculum. In addition, the respondents felt that input into firms' training processes, and knowledge networks and R&D were even less utilised;

- **Any link between FE and industry is a step in the right direction:** when asked how effective these links were in encouraging economic development, none of the industry representatives gave a negative response. In addition, in most cases the development agencies and councils described each of these links as being very effective. Furthermore, the more positive outcomes came from the more market-orientated College activities like knowledge networks and R&D;
- **FE proactively establishing links with industry:** when asked to comment on how these links were established, the majority were positive, highlighting FE's efforts to establish close links with industry. Typical comments included:
 - Colleges are now approaching industry more;
 - at the local level Colleges proactively look to help firms and vice versa;
 - some links came out of research by the FE sector, which gave them initial links into the business sector;
 - FE seems to be trying to match industry's needs to what they are delivering; and
 - usually the FE Colleges would approach the firms as apposed to the other way around.
- **DEL's role in establishing FE / industry relationships:** it was reported that funded initiatives from DEL and other funding bodies have helped Colleges to engage with firms. The extra resources have enabled the Colleges to devote more time and labour into the process of establishing and maintaining links with industry;
- **Industry's role in establishing links with FE:** while in the minority, it is worth noting that a small number of the consultations stressed that the cause of the links were down to industry's activities. Typical remarks included:
 - it is definitely not by FE. All the links that have been established between the two is down to industry; and
 - industry doesn't really hold FE in the highest esteem. The FE sector waits for students to enter their Colleges, they don't really take time to find out what industry needs. It is industry who have tried to establish links.

- **Improved links between FE and industry:** over four fifths of those questioned, thought that the links between industry and FE had improved to some degree over the last 3 years. While the remaining fifth felt that it had remained the same. Interestingly none of the industry bodies, development agencies or Councils felt that the links had worsened over the period;
- **No room for complacency:** when asked if they had any difficulties with the links between FE and their industry, the general consensus among the industry respondents was that there was still work to be done. It was felt that the Colleges still needed to work on understanding business needs. In so doing, they needed to restructure the curriculum to focus more on local businesses. In addition, it was felt by a minority that FE was not up to speed with industry due to the specific technologies used outside the FE sector. One respondent highlighted the problems with industry's perceptions of FE. In particular they felt that industry was more likely to collaborate with HE than with FE;
- **Areas for improvement (FE and industry):** all industry representatives provided some suggestions on how links could be improved. Typical responses included:
 - more frequent meetings between FE and industry;
 - more formal linkages between FE and industry;
 - more flexibility by Colleges to go out and provide training at the firms;
 - more of a business and industry focus;
 - better understanding of industry to help continue the positive steps that have been taken in recent years;
 - more emphasis on work based learning needs, more focus on short tailored programmes;
 - more resources to help Colleges engage with local industry and to find out the local needs;
 - more courses at technicians level;
 - joint forums to facilitate the exchange of views;
 - promote the lecturers into industry scheme more; and
 - more help with R&D.

- **Lecturers into Industry scheme:** 70% of the industry respondents were aware of the Lecturers into industry scheme and all knew of examples of it operating within their industry. In addition, no respondents felt that it was not useful in encouraging stronger links between FE and industry. In terms of it encouraging economic development, all but one respondent found it to be useful;
- **Improved strategic links with development agencies and councils:** nearly three quarters of the development agencies and councils had direct strategic links with the FE sector. These links were in a variety of forms such as local strategy partnerships, enterprise communities, and joint promotion of schemes and initiatives. All forms of links have the potential to be very effective. At present many of these links have either only been developed or could be expanded. Over 85% of the development agencies and councils felt that these links had improved to some degree. The remaining 14% felt that they had remained the same;
- **Problems with links between FE and agencies / councils:** the only problems were the local variations in Colleges and infrastructure, and the lack of resources available to Colleges in order to pursue closer links;
- **Areas for improvement (FE and agencies / councils):** some thought that there needed to be better co-operation and communication between the two sectors. The local variations in infrastructure and Colleges were cited as reasons for inefficiency. It was felt by some, that by forging closer co-operation and communication between the Colleges, DEL, agencies / councils and ANIC, the links would be more efficient. In addition it was believed by some that the wide range of services and training offered by FE needed to be streamlined for SMEs. Others felt that the FE Colleges needed more resources, reinforcing the same key finding from the industry responses. Lastly, it was replied that the links between agencies / councils and FE were still evolving; and
- **FE is an effective partner in addressing local economic development:** a key finding from the consultation process was that all development agencies and councils saw the FE sector as an effective partner in terms of addressing local economic development. The most commonly cited reason for this was the FE's strong local links with schools, firms, and the community.

Inward investment and SMEs

- 5.8 The consultations found a number of key findings with regards FE's role in attracting inward investment and assisting SMEs. Overall, the consultations suggest that the FE sector has only begun to address its role as a key player in attracting inward investment, however the sector seems to have realised its role in assisting SMEs.
- 5.9 The Box below presented a government perspective on FE's role in attracting inward investment.

A Government perspective on FE's role in attracting inward investment

The consultation exercise found that potential inward investors are focused on FE Colleges as part of the local infrastructure. The existence of a local source of training, is very attractive to inward investors who will need a strong local skills base and training facilities for their potential employees. As such local office networks and business groups promoting inward investment, are working with the FE Colleges to deliver attractive packages to potential investors.

It was reported that there are examples of the FE sector assisting in attracting inward investment into Northern Ireland. It was also reported that FE's role in attracting inward investment has improved notably over the last three years. However the big challenge was seen to be FE's speed of response to changing investors demands. It was also stated that the Colleges needed to be flexible to adapt to changing needs which, it is felt, they are currently willing to do.

- **Limited industry knowledge of attracting inward investment:** only a limited number of industry representatives were in a position to comment. When asked how FE's role could be improved further typical responses included:
 - needs to be more industry oriented; and
 - needs to focus on local industry before focusing on inward investment, needs to promote and provide training for firms at a time and place which suits them.
- **High incidence of FE assisting SMEs:** nearly all consultees reported being aware of FE assisting SMEs. When asked to comment on FE's role, typical responses included:
 - sent in experts to help or put into practice a piece of machinery;
 - provided expertise that was not available to the SMEs;
 - created tailored training courses for individual firms; and
 - funding has made it possible for FE to respond directly to identified needs in a way that they would not have otherwise done.
- **Improved role in assisting SMEs:** 86% of respondents felt that FE's role in assisting SMEs had improved to some degree over the last 3 years. When asked how to improve FE's assistance, responses fell into three general categories; promotion, funding and partnerships:

- Colleges need a business focus and to get out to employers to tell them what they can offer. They need to sell and promote themselves;
- FE is an untapped resource which needs to be promoted.
- need to facilitate within their funding structure the flexibility for the FE College to respond to local industry needs;
- need to communicate more with other key players; and
- need to form partnerships to provide more mentoring, etc.

FE role in skills development

- 5.10 The respondents were asked to rank the importance of various areas of education and training, in terms of the needs of the current Northern Ireland economy. The findings are presented in the Table below.

The importance of various areas of education and training to the Northern Ireland economy

	Not Important				Very Important
	1	2	3	4	5
Essential Skills (Literacy & Numeracy)	0%	0%	13%	19%	69%
Learning needs of SMEs	0%	0%	25%	38%	38%
IT skills	0%	0%	25%	31%	44%
Training in specific industry sectors	6%	0%	13%	31%	50%
Training in 'high tech' activities	0%	6%	31%	31%	31%
Cont. Professional Development	0%	0%	19%	56%	25%
Training for the community / voluntary sector	6%	6%	38%	31%	19%
Interpersonal skills and communication	0%	13%	19%	38%	31%
Customer Handling Skills	0%	0%	25%	25%	50%
Teamwork Skills	0%	0%	13%	63%	25%
Management Skills	0%	0%	25%	19%	56%
Practical Skills	0%	0%	19%	44%	38%
Problem Solving Skills	0%	11%	11%	56%	22%

Note:

1) may not add to 100% due to rounding

2) n = 16, i.e. 9 industrial representatives and 7 agencies / councils

- **Generic skills are considered important:** the key finding is that industry is now demanding soft / cognitive skills from their employees as opposed to specific job related skills. The most important generic skills were, essential skills including literacy and numeracy, customer handling skills, teamwork skills, and management skills. However IT skills and training in specific industry sectors are still regarded as being of importance;

How the FE sector is perceived to be effectively addressing skill issues

	Not at all 1	Limited response 2	Sufficient response 3	More than sufficient response 4
Essential Skills (Literacy & Numeracy)	0%	50%	44%	6%
Learning needs of SME's	6%	63%	31%	0%
IT skills	0%	31%	56%	13%
Training in specific industry sectors	13%	47%	33%	7%
Training in 'high tech' activities	7%	40%	47%	7%
Cont. Professional Development	0%	60%	33%	7%
Training for the community / voluntary sector	15%	46%	31%	8%
Interpersonal skills and communication	13%	60%	13%	13%
Customer Handling Skills	0%	80%	20%	0%
Teamwork Skills	7%	64%	29%	0%
Management Skills	0%	79%	7%	14%
Practical Skills	7%	47%	40%	7%
Problem Solving Skills	0%	67%	33%	0%

Note:

1) may not add to 100% due to rounding

2) n = 16, i.e. 9 industrial representatives and 7 agencies / councils

- **Limited response to addressing skill needs:** only very few of the respondents perceived the FE sector's response to be 'more than sufficient' (see Table above). In most cases, industry felt that FE's response was only limited;
- **Mixed perception of FE sector's delivery of skill needs:** industry respondents were evenly split on whether FE's delivery of skill needs to the economy had become more effective over the three years. Interesting, all of the development agencies / councils thought that the FE sector's delivery of skill needs to the economy had become more effective over the last three years;
- **Limited response to addressing skill shortages:** the consultation exercise asked the industry representatives if they were aware of any skill shortages in a range of industry sectors in Northern Ireland. In most cases, the respondents felt that they did not have enough knowledge to comment on skill shortages in the particular industries. Although responsibility for skill shortages is not a matter for FE solely, it was the view of some respondents that there was only a limited response from FE to address each skill shortage; and
- **Improved responsiveness to skill shortages:** interestingly, even though it was reported that FE had offered a limited response to addressing skill needs and skill shortages, just over 75% of industry respondents felt that the FE sector's responsiveness to skill shortages had become more effective over the last three years. Mainly due to a general impression that there are more and varied courses. It was also felt that FE Colleges have a better understanding of skills requirements. However the remaining quarter of industry respondents felt that there was no evidence of better linkages and in fact they

generally felt that they have less communication now than they had a few years ago.

Perception and role / value of vocational qualifications

5.11 The industry respondents were asked to comment on the perception of the value of vocational qualifications compared to academic qualifications in their industry.

- **Positive perception of vocational qualifications:** on the whole, industry's perceptions were positive and in most cases if a respondent felt that they had a low status attached to them, they usually felt that this was misguided; and
- **Improving role / value of vocational qualifications:** It was generally felt that the role / value of vocational qualifications were increasing compared to academic qualifications, but not to the extent that they deserved to. In general, academic qualifications were still rated more highly.

Dichotomy of demand for vocational skills and earnings

The literature review posed an important question, why does industry not pay as much for FE graduates? It was shown that the demand for vocational qualifications was high by industry and that the skills demanded were soft skills as opposed to academic knowledge. However when the existing evidence on the returns to education was reviewed, it seems that employers are not prepared to pay as much for vocational qualifications.

The consultation exercise has found that industry's perception of the value of vocational qualifications compared to academic qualifications was fairly positive. Even though respondents did feel that academic qualifications were held in higher esteem than vocational qualifications they felt that this was misguided. The bullets below describe a few possible arguments for this finding.

- **Wage bargaining power:** when individuals receive training for a specific job it can have an adverse effect on their wage bargaining power. With specific training, an individual may be seen as suitable for only a small variety of jobs. General training however, would enable the individual to move between a larger range of jobs. It is this degree of labour market mobility that influences the wage bargaining power of the employee. As academic training is considered to be less job specific than vocational training, vocational graduates may find themselves less mobile than academic graduates. Therefore their bargaining power and ultimately earnings, would be reduced.

However there are cases where vocational graduates have high wage bargaining power. For example there is evidence (Wolf, 2003) that vocational education can command high earnings *if* the individual is employed in an occupation that is well matched to their qualification/training. In this case, if the role of the employee is very specific and requires vocational training, then they will have a high wage bargaining power.

- **Career decisions:** decisions on vocational education are often made around the ages of 16 to 18. Later in life, graduates may decide that the job they are training for is not what they want to do and they may choose to follow a completely different career path. However as they have received most of their training for a specific occupation or role, they may find that they possess a narrower range of skills to offer a potential employer. As a result this would put downward pressure on the wage they could command in the labour market. Therefore, perhaps vocational training such as GNVQs would in general (at least in the early phases of the course) give learners a broader set of skills.

Progression in relation to baseline findings

- 5.12 The 1999 DENI baseline report found a number of key strengths, weaknesses and areas for improvement, in relation to FE fulfilling its economic role. The Table overleaf shows how FE has progressed in relation to some of the baseline reports key findings.

Has the economic role of FE improved since 1999?

Key findings from Baseline report	Key findings from College returns	Key findings from consultations
Key strengths		
Strong linkages between individual Colleges and local employers in the private, public and community / voluntary sectors.	The College BIRs highlighted that the linkages between Colleges and local employers had improved slightly over the 3 years since the baseline study. In most cases the main thrust of colleges was to support business all year round. All colleges reported working with a number of different economic sectors with the key skills areas being prevalent. In addition most of the colleges engaged with variety of different sized firms on a range of areas and highlighted an array of measures for identifying and maintaining relationships with firms.	The consultation process found that both the industry representatives and the development agencies / councils reported the presence of many linkages between themselves and the FE sector. However even though there has been improvement over 3 years, there is still room for improvement as the consultations showed that not all of the potential links were being utilised.
Addressing local skill needs.	The findings from the College returns suggest that there may have been improvements since the baseline report. Most of the Colleges reported that their development plans, which included a strategy to support economic development, were drawn up after liaising with local industry and local enterprise agencies. In addition all of the colleges reported having some involvement in their Local Strategy Partnership. The BIRs also highlighted that the majority of Colleges involved industry in designing the curriculum.	The respondents commented on a number of occasions that FE has improved its understanding of local industry requirements. A number of respondents reported that the Colleges had become more proactive in meeting local skill needs. In addition, it was reported that Colleges were becoming involved in inward investment packages as they were firmly part of local infrastructure. However evidence was also found that many of those consulted thought that FE's response to addressing skills issues was limited.

Key findings from Baseline report	Key findings from College returns	Key findings from consultations
Linkages into local communities.	Again the findings from the College returns suggest that there have been improvements in this area since the baseline report. For example all Colleges reported having links with local schools and reported liaising with students, local stakeholders, local firms and the local planning authorities.	It was found that the most commonly reported reason for FE being an effective partner in terms of addressing economic development was due to its strong local links with schools, firms and the community.
Areas for improvement		
Lack of clarity.	The findings suggest that there may have been improvement in this area. The Colleges reported that they have been working closer with a variety of local firms, SMEs, individuals and groups. In addition all the colleges had included a strategy to support economic development and had adopted a focus on supporting industry. Furthermore, the majority of Colleges had established dedicated business units to work with and support SMEs, as well as showing a willingness to offer flexible services to firms.	A number of respondents thought that the wide range of assistance, training, schemes and initiatives offered by the Colleges was still too much. Several respondents felt that these needed to be streamlined as well as providing guidance to SMEs. However a more strategic approach was being adopted.

Key findings from Baseline report	Key findings from College returns	Key findings from consultations
Limited amount of co-ordination within the sector.	The BIRs highlighted that the Colleges have made an effort to strengthening the co-ordination of the sector. The Colleges reported being more pro-active in identifying and maintaining relationships with firms. In addition, most colleges showed that efforts had been made to become more involved with industry in a variety of ways, including establishing dedicated business units and placing senior staff on councils.	The consultation found that there is stronger co-ordination between the FE sector and respondents. Many reported that Colleges were now more aware of industry and local needs and were more pro-active in seeking out opportunities to work with industry, development agencies and councils. A number of respondents reported that Government funding had driven this closer co-ordination.
Linkages between FE and industry.	The consultations with the Colleges suggest that the linkages between FE and industry have strengthened over the 3 years. Examples include clearer focus on supporting industry, measures to identify and maintain relationships with firms, establishment of dedicated business units, and industry involvement in designing the curriculum.	The degree of ad hocacy that was found in the baseline report seems to be less evident. For example, it was found that Colleges are now involved in local strategy partnerships, initiatives to assist SMEs and from the findings of the questionnaire, most have adopted a strategy to support economic development.
The role of FE in attracting inward investment.	The findings from the College consultations did not bring to light any direct FE involvement in attracting inward investment, but did highlight the efforts being made to tackle local skill needs.	Very few of the industry representatives were aware of any examples of FE assisting in attracting inward investment. However of those who were aware two felt that FE's role had improved slightly. In addition there was evidence that Colleges are now working with development agencies to attract inward investment by contributing to packages that would be offered to potential investors.

Key findings from Baseline report	Key findings from College returns	Key findings from consultations
Linkages between FE and DED agencies.	There was limited evidence in relation to the linkages between FE and DETI agencies. However there was indirect evidence to suggest that Colleges are taking their role in economic development more seriously by working closely with councils and including plans, to support economic development, in their college development plans.	When asked, 86% of the development agencies and councils felt that the links between themselves and the FE sector had improved to some degree over the last 3 years. Furthermore, all of the agencies / councils felt that the FE sector was an effective partner in terms of addressing local economic development. It was also reported that the FE Colleges are now a major component in attracting inward investment, by working closely with local office networks and organisations that promote and attract inward investment.

VI Conclusions

Skills, economic growth and labour market success

6.1 There is a widely held view, backed up by considerable empirical evidence, that high standards of education, training and skills make a positive contribution to business development, individuals' labour market success and, ultimately, economic growth. The research undertaken as part of this study, mainly in the literature review, has highlighted a number of specific points of interest in relation to this overall finding:

- There has been an interesting element of '**revisionism**' recently by some leading academics, who have argued that more education *per se* is not necessarily beneficial to businesses. Rather, it is argued that the focus of policy ought to be on improving the **quality of education rather than increasing the quantity**;
- There is clear evidence to show that Northern Ireland **businesses have a strong demand for a wide range of generic skills** (e.g. literacy, numeracy, communication, problem solving etc). Such skills are likely to have become more important in the last 2-3 decades in light of the increased need for flexibility and adaptability in the workplace, driven by a sophisticated and constantly-changing profile of market demand;
- There is **some empirical evidence from employers of the demand for specific technical skills being at the higher technical level** (e.g. in Northern Ireland's mechanical engineering sector). However, on balance, **the evidence suggests a rather mixed profile of skills demand across Northern Ireland's key priority sectors** (e.g. in the IT sector the main skills gap relates to graduates with 5-10 years project management experience);
- Empirical evidence, at national and international level, on the specific economic impact of Further Education seems rather limited. What evidence there is, focuses on the **wider economic role of the FE sector**, i.e. its role, not only in terms of the 'production' of skilled labour, but also in terms wider impacts including urban regeneration, business consultancy, work-based learning and inward investment support;
- The evidence clearly shows that '**education pays**'; a number of 'returns to education' studies for Northern Ireland and elsewhere, show that higher levels of education lead to better subsequent earnings in the labour market. However, there is a growing body of empirical evidence from the UK which shows that **occupationally oriented qualifications pay rather less well than their traditional academic counterparts**. For example, some of the studies we reviewed suggest that employers will pay 2-3 times more for someone with a traditional academic qualification compared to the same broad level of vocational qualification. This is likely to reflect:

- an apparently persistent **culture** amongst UK business which tends to favour the traditional academic route, and to view **vocational qualifications as relatively low status**; and
- the **increased importance of generic skills** within the context of a sophisticated and continually changing market demand.

FE and economic development in Northern Ireland

6.2 The evidence from this study suggests that Colleges' involvement in, and contribution to, economic development activities, has improved significantly in recent years in Northern Ireland. This finding is reflected in a number of specific pieces of evidence:

- Around four fifths of all those consulted as part of this study (21 in total) indicated that they thought there had been a clear strengthening of FE's economic role since 1999;
- Most of the sectoral bodies (over 75%) thought that the FE sector had, in general, improved its responsiveness to skills shortages;
- All of the economic development agencies and local councils interviewed felt that their own links with FE Colleges had improved since 1999; and
- In relation to helping to stimulate the small firm sector, 86% of all those consulted (21 in total) indicated that they thought FE's role had improved significantly since 1999.

6.3 The evidence suggests that a number of key factors have been driving these findings:

- Feedback from the College questionnaires *and* the consultations suggests that Colleges are generally adopting a **more intensive and more strategic focus on economic development** now, than they did prior to incorporation;
- Related to this, Colleges now see their role not simply as education and training providers but, rather, more broadly as one of the **key drivers of economic development in their local area**; they offer consultancy, business support, research and development, and a wide range of other business support services, in addition to education and training provision;
- There was a clear recognition amongst the wider stakeholder group that one of the key strengths of the FE sector lies in the **strong local networks** it has with schools, businesses and other public sector agencies;
- In response to the demands of businesses, individual Colleges have in recent years been involved in developing a **range of more flexible forms of training delivery** (e.g. e-learning, short modular courses etc). Their activities in this area represented one of the key ways in which Colleges were

trying to respond to, and indeed anticipate, changing requirements for training in a modern labour market;

- In addition, a number of specific initiatives and programmes have also made an important contribution to the enhanced role of FE in economic development (e.g. **Lecturers into Industry** scheme); and
- Colleges recognise that their stronger links with industry have been helped, at least in part, by the **proactive efforts on the part of the Department and the Association of NI Colleges (ANIC)** in terms of marketing the sector to businesses.

6.4 Notwithstanding this broadly positive picture, there are, nevertheless, a number of areas in which the evidence suggests that the sector could improve on its economic development role: firstly, there is a reported need for Colleges to be ***even more flexible and business-facing*** than they currently are. Secondly, it was reported that Colleges should **understand the needs of business** even better.

Annex A: Consultees and topic list

Industry representatives	
Momentum (IT & Electrical engineering sectors)	
Engineering Training Council (Mechanical engineering sector)	
Construction Employers Federation (Construction sector)	
CBI (Manufacturing)	
NI Hotels Federation (Tourism sector)	
Tourism Training Trust (Tourism sector)	
NI Food and drink Association (Food sector)	
Centre for Competitiveness (science sector)	
NI Bankers' Association (Finance sector)	
Department of Health Social Services and Public Safety (Health sector)	
NI Textile & Apparel Association (Textiles sector)	
NI Textile and Clothing Training Council (Textiles sector)	
CBI	
Institute of Directors	
Development Agencies & District Councils	
Invest Northern Ireland	
InterTradeIreland	
Antrim Borough Council	
Ards Borough Council	
Derry City Council	
Lisburn Borough Council	
Omagh District Council	

Annex B: Additional evidence on returns to education

Other studies have estimated the returns to qualifications. For example, Conlon (2001) found that there is a statistically significant differential in the earnings premium achieved by the academically and vocationally qualified at every level. The table below shows his results using an Ordinary Least Squares (OLS) model and an Instrumental Variables model.

**Estimates of earning premium for males aged
between 16 and 55**

Level of qualification	OLS	Instrumental Variables
Academic		
Academic Level 1	14.1%	12.7%
Academic Level 2	26.9%	25.5%
Academic Level 3	43.9%	45.8%
Academic Level 4	54%	58.8%
Academic Level 5	58.4%	65.2%
Vocational		
Vocational Level 1	5.2%	4.4%
Vocational Level 2	16.4%	15%
Vocational Level 3	27%	24.3%
Vocational Level 4	41.4%	40.3%
Vocational Level 5	45.4%	34.8%

Source: Conlon (2001)

Note: Estimates are not additive as before, they are absolute.

Conlon's (2001) estimates are not additive as those in the Dearden et al (2000a) example, instead they are presented in absolute terms. Therefore someone who gains an NVQ level 5 (i.e. a Vocational Level 5 in the table above) will expect to see 45.4% more returns over an unqualified person (using the OLS econometric model). The estimates are based on a sample of males with various academic histories, therefore we cannot estimate the effects of different routes into FE as shown in the literature review. However when comparing those estimates, to the ones presented in the Table above, we can see that they are reasonably close.

Annex C: Consultation topic list for Industry Bodies

PricewaterhouseCoopers have been commissioned by DEL to conduct this survey as part of a review of the Economic Role of the Further Education sector. The main purpose of the survey is to review the effectiveness of current links between the economy and the FE sector, and to explore the potential development of these links in the future.

Organisation details

(to be filled in by interviewer)

Organisation name

Telephone number

Contact person

Direct links between FE and your industry

1. Which of the following links exist between your industry and FE?

(Please tick all that apply)

- a) Sponsored courses (courses delivered by FE for the firms staff)
- b) Work based learning (where an FE representative would visit the firm to give training on the shop floor)
- c) Direct training (tailored training packages for individual firms)
- d) Placements (the placement of students including work experience)
- e) Input into firms training process (e.g. training needs analysis for firms)
- f) Guidance on the curriculum
- g) Knowledge networks and R&D
- h) No links

i) Other

j) Please specify other:

2. How were these links established?

3. How effective are these links in encouraging economic development?

	Very ineffective	Ineffective	Neither effective or ineffective	Effective	Very effective
a) Sponsored courses (courses delivered by FE for the firms staff)					
b) Work based learning (where an FE representative would visit the firm to give training on the shop floor)					
c) Direct training (tailored training packages for individual firms)					
d) Placements (the placement of students including work experience)					
e) Input into firms training process (e.g. training needs analysis for firms)					
f) Guidance on the curriculum					
g) Knowledge networks and R&D					

h) Other

i) Please specify other:

4. How have the links between your industry and FE strengthened over the last 3 years?

(Please tick)

a) Greatly improved

b) Improved notably

c) Improved slightly

d) Stayed the same

e) Worsened

5. Could you identify any difficulties emerging from your links with FE?

6. Are there any areas for improvement to ensure links are more effective?

7. Are you aware of the 'Lecturers into industry' scheme?

Yes	No

If Yes

8. Are there cases of this operating within your industry?

Yes	No

9. If so how effective do you think this scheme is at

- a) Encouraging stronger links between FE and industry
b) And in encouraging economic development

Extremely useful	Very useful	Useful	Not useful

10. How has FE's role in attracting inward investment increased over the last 3 years?

- a) Greatly improved
- b) Improved notably
- c) Improved slightly
- d) Stayed the same
- e) Worsened

11. In terms of attracting inward investment how could FE's role be improved further?

12. Within your industry, are you aware of any examples of the FE sector helping to develop SME's?

Yes	No

--

13. What was FE's role?

14.

How has FE's role in assisting SMEs increased over the last 3 years?

- a) Greatly improved
- b) Improved notably
- c) Improved slightly
- d) Stayed the same
- e) Worsened

15. In terms of assisting SMEs how could FE's role be improved further?

FE role in skills development

16. In terms of the needs of the current Northern Ireland economy, how would you prioritise the following areas of education and training? (Where 1 = not important and 5 = very important)

- a) Essential skills including literacy and numeracy
- b) Learning needs of small businesses
- c) Computer and technology skills for the workforce
- d) Training in specific industry sectors
- e) Training in 'high-tech' activities

- f) Continuing professional development
- g) Training for the Community / Voluntary Sector
- h) Interpersonal Skills and Communication
- i) Customer handling skills
- j) Teamwork skills
- k) Communications skills
- l) Management skills
- m) Practical skills
- n) Problem solving skills
- o) Other (please specify):

17. In as much as they can, do you think the FE sector is effectively addressing these skill issues

	Not at all	Limited response	Sufficient response	More than sufficient response
a) Essential skills including literacy and numeracy				
b) Learning needs of small businesses				
c) Computer and technology skills for the workforce				
d) Training in specific industry sectors				
e) Training in 'high-tech' activities				
f) Continuing professional development				
g) Training for the Community / Voluntary Sector				
h) Interpersonal Skills and Communication				
i) Customer handling skills				
j) Teamwork skills				
k) Communications skills				
l) Management skills				
m) Practical skills				

n) Problem solving skills				
o) Other (please specify):				

18. Has the FE sector's delivery of Skill needs of industry become more effective over the last three years?

Yes	No

19. Are you aware of any skill shortages in any of the following industry sectors in NI? (Where "skill" refers to the education and training required to fulfil a specific job)

	Yes-major shortage	Yes – minor shortage	No shortage	Don't know
a) Electronics				
b) Telecoms				
c) Software				
d) Health Technologies				
e) Tourism				
f) Tradeable Services				

g) Agri Food				
h) Food processing				
i) Textiles & Apparel				
j) Engineering				
k) Construction				
l) Health Services				
m) Housing Management				
n) Environmental Management				
o) Voluntary Services				
p) Other (please specify)				

20. To what extent is the FE sector addressing each skill shortage area?

	Not at all	Limited response	Sufficient response	More than sufficient response
a) Electronics				
b) Telecoms				
c) Software				
d) Health Technologies				
e) Tourism				
f) Tradeable Services				
g) Agri Food				
h) Food processing				
i) Textiles & Apparel				
j) Engineering				
k) Construction				
l) Health Services				
m) Housing Management				

n) Environmental Management				
o) Voluntary Services				
p) Other (please specify)				

21. In terms of responsiveness to skill shortages has FE become more effective over the last three years?

Yes	No

22. Can you give us reasons for response (better linkages etc.)?

23. What is the perception of the value of vocational qualifications compared to academic qualifications in your industry?

24. Compared to academic qualifications, is the role / value of vocational qualifications increasing?

Consultation topic list for Development Agencies and District / Borough Councils

PricewaterhouseCoopers have been commissioned by DEL to conduct this survey as part of a review of the Economic Role of the Further Education sector. The main purpose of the survey is to review the effectiveness of current links between the economy and the FE sector, and to explore the potential development of these links in the future.

Organisation details

(to be filled in by interviewer)

Organisation name

Telephone number

Contact person

Direct links between FE and industry

1. What is your involvement with the FE sector?

2. How strong do you feel the following links are between FE and industry?

a) Sponsored courses (courses delivered by FE for the firms staff)

b) Work based learning (where an FE representative would visit the firm to give training on the shop floor)

c) Direct training (tailored training packages for individual firms)

d) Placements (the placement of students including work experience)

e) Input into firms training process (e.g. training needs analysis for firms)

f) Guidance on the curriculum

g) Knowledge networks and R&D

h) No links

i) Other

j) Please specify other:

3. How were these links established?

4. How effective are these links in encouraging economic development?

	Very ineffective	Ineffective	Neither effective or ineffective	Effective	Very effective
a) Sponsored courses (courses delivered by FE for the firms staff)					
b) Work based learning (where an FE representative would visit the firm to give training on the shop floor)					
c) Direct training (tailored training packages for individual firms)					
d) Placements (the placement of students including work experience)					
e) Input into firms training process (e.g. training needs analysis for firms)					
f) Guidance on the curriculum					
g) Knowledge networks and R&D					
h) Other					
i) Please specify other:					

5. How do you feel the links between the FE sector and industry have strengthened over the last 3 years? (Please tick)

- a) Greatly improved
- b) Improved notably
- c) Improved slightly
- d) Stayed the same
- e) Worsened

COMMENTS:

6. Could you identify any difficulties emerging from links between the FE sector and industry?

7. Do you feel there are any areas for improvement, to ensure links are more effective?

8. Do you feel that the FE sector is an effective partner in terms of addressing local economic development

Yes	No

9. Why do you say that?

10. How has FE's role in attracting inward investment increased over the last 3 years?

- a) Greatly improved
- b) Improved notably
- c) Improved slightly
- d) Stayed the same
- e) Worsened

11. Do you feel that the FE sector has an important role to play in helping to attract inward investment?

12. In terms of attracting inward investment how could FE's role be improved further?

13. Has FE's role in assisting SMEs increased over the last 3 years?

- a) Greatly improved
- b) Improved notably
- c) Improved slightly
- d) Stayed the same
- e) Worsened

14. Do you feel that the FE sector has an important role to play in supporting SMEs?

15. In terms of assisting SMEs how could FE's role be improved further?

FE role in skills development

16. In terms of the needs of the current Northern Ireland economy, how would you rank the following areas of education and training? (Where 1 = not important and 5 = very important)

- a) Essential skills including literacy and numeracy
- b) Learning needs of small businesses
- c) Computer and technology skills for the workforce
- d) Training in specific industry sectors
- e) Training in 'high-tech' activities
- f) Continuing professional development
- g) Training for the Community / Voluntary Sector
- h) Interpersonal Skills and Communication
- i) Customer handling skills
- j) Teamwork skills
- k) Communications skills
- l) Management skills

- m) Practical skills
- n) Problem solving skills
- o) Other (please specify):
-

17. In as much as they can, do you think the FE sector is effectively addressing these skill issues

	Not at all	Limited response	Sufficient response	More than sufficient response
a) Essential skills including literacy and numeracy				
b) Learning needs of small businesses				
c) Computer and technology skills for the workforce				
d) Training in specific industry sectors				
e) Training in 'high-tech' activities				
f) Continuing professional development				

- g) Training for the Community / Voluntary Sector
- h) Interpersonal Skills and Communication
- i) Customer handling skills
- j) Teamwork skills
- k) Communications skills
- l) Management skills
- m) Practical skills
- n) Problem solving skills
- o) Other (please specify):

18. In your opinion has the FE sectors delivery of Skill needs of industry become more effective over the last three years?

Yes	No

19. Are you aware of any skill shortages in any of the following industry sectors in NI? (Where “skill” refers to the education and training required to fulfil a specific job)

		Yes-major shortage	Yes – minor shortage	No shortage	Don’t know
a)	Electronics				
b)	Telecoms				
c)	Software				
d)	Health Technologies				
e)	Tourism				
f)	Tradeable Services				
g)	Agri Food				
h)	Food processing				
i)	Textiles & Apparel				
j)	Engineering				
k)	Construction				
l)	Health Services				
m)	Housing Management				
n)	Environmental Management				

o)	Voluntary Services				
p)	Other (please specify)				

20. To what extent is the FE sector addressing each skill shortage area?

		Not at all	Limited response	Sufficient response	More than sufficient response
a)	Electronics				
b)	Telecoms				
c)	Software				
d)	Health Technologies				
e)	Tourism				
f)	Tradeable Services				

g)	Agri Food				
h)	Food processing				
i)	Textiles & Apparel				
j)	Engineering				
k)	Construction				
l)	Health Services				
m)	Housing Management				
n)	Environmental Management				
o)	Voluntary Services				
p)	Other (please specify)				

21. In terms of responsiveness to skill shortages has FE become more effective over the last three years?

Yes	No

22. Can you give us reasons for response (better linkages etc.)?

23. Do you know what the perception is of the value of vocational qualifications compared to academic qualifications in industry generally?

24. Compared to academic qualifications, do you think the role / value of vocational qualifications is increasing?

Consultation topic list for Development Agencies and District / Borough Councils

PricewaterhouseCoopers have been commissioned by DEL to conduct this survey as part of a review of the Economic Role of the Further Education sector. The main purpose of the survey is to review the effectiveness of current links between the economy and the FE sector, and to explore the potential development of these links in the future.

Organisation details**(to be filled in by interviewer)**

Organisation name

Telephone number

Contact person

Direct links between FE and industry

1. Please outline what knowledge you have of the FE sector and it's contribution to economic development in terms of:

a) Direct links with firms

b) Its contribution to individual's skills development

2. Does your organisation have any direct strategic or operational links with the FE sector?

Yes	No

If yes

3. What is the nature of these links?

4. How effective are the links between the FE sector and your organisation in relation to encouraging economic development? (*why do you say that?*)

5. How have the links between your organisation and the FE sector strengthened over the last 3 years? (Please tick)

a) Greatly improved

b) Improved notably

c) Improved slightly

d) Stayed the same

e) Worsened

f) Not sure

COMMENTS:

6. Can you identify any difficulties emerging from links between your organisation and the FE sector?

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7. Do you think there are any areas for improvement so that links between your organisation and the FE sector could be more efficient?

8. Do you feel that the FE sector is an effective partner in terms of addressing local economic development

Yes	No

9. Why do you say that?

Direct links between FE and industry

10. Are you aware of any of the following? *(if yes how effective are they in encouraging economic development?)*

Yes	No
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a)	Sponsored courses (courses delivered by FE for the firms staff)			
b)	Work based learning (where an FE representative would visit the firm to give training on the shop floor)			
c)	Direct training (tailored training packages for individual firms)			
d)	Placements (the placement of students including work experience)			
e)	Input into firms training process (e.g. training needs analysis for firms)			
f)	Guidance on the curriculum			
g)	Knowledge networks and R&D			
h)	Other			
i)	Please specify other:			

11. How were these links established?

12. How do you feel the links between the FE sector and industry have changed over the last 3 years? (Please tick)

- a) Greatly improved
- b) Improved notably
- c) Improved slightly
- d) Stayed the same
- e) Worsened
- f) Not sure

COMMENTS:

13. Are you aware of any examples where the FE sector has assisted in attracting inward investment into Northern Ireland?

Yes	No

14. What was FE's role?

15. How has FE's role in attracting inward investment changed over the last 3 years?

f) Greatly improved

g) Improved notably

h) Improved slightly

i) Stayed the same

j) Worsened

k) Not Sure

16. In terms of attracting inward investment how could FE's role be improved further?

17. Are you aware of any examples where the FE sector has assisted SMEs?

Yes	No

18. What was FE’s role?

19. Has FE’s role in assisting SMEs increased over the last 3 years?

- a) Greatly improved
- b) Improved notably
- c) Improved slightly
- d) Stayed the same
- e) Worsened
- f) Not Sure

20. In terms of assisting SMEs how could FE’s role be improved further?

FE role in skills development

21. In terms of the needs of the current Northern Ireland economy, how would you rank the following areas of education and training? (Where 1 = not important, 5 = very important and 6 = Not sure)

- a) Essential skills including literacy and numeracy
- b) Learning needs of small businesses
- c) Computer and technology skills for the workforce
- d) Training in specific industry sectors
- e) Training in ‘high-tech’ activities
- f) Continuing professional development

- g) Training for the Community / Voluntary Sector
 - h) Interpersonal Skills and Communication
 - i) Customer handling skills
 - j) Teamwork skills
 - k) Management skills
 - l) Practical skills
 - m) Problem solving skills
 - n) Other (please specify):
-

22. In so far as it can, do you think the FE sector is effectively addressing these skill issues?

Not at all	Limited	Sufficient	More than	Not sure
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	response	response	sufficient response	
a) Essential skills including literacy and numeracy				
b) Learning needs of small businesses				
c) Computer and technology skills for the workforce				
d) Training in specific industry sectors				
e) Training in 'high-tech' activities				
f) Continuing professional development				
g) Training for the Community / Voluntary Sector				
h) Interpersonal Skills and Communication				
i) Customer handling skills				
j) Teamwork skills				
k) Management skills				
l) Practical skills				
m) Problem solving skills				
n) Other (please specify):				

23. In your opinion has the FE sector's delivery of Skill needs of the economy become more effective over the last three years?

Yes	No

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