Sector Skills Assessment for the Construction Sector 2010

ConstructionSkills Northern Ireland Report

ConstructionSkills Research

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1. Introduction

ConstructionSkills is the Sector Skills Council for construction. As a partnership between CITB-ConstructionSkills, the Construction Industry Council and CITB-ConstructionSkills Northern Ireland, it covers the construction sector from planning and design through to construction and maintenance, and represents occupations from crafts through to building professionals.

This report describes the current and future skills priorities for the construction sector, demonstrating the contribution that construction makes to the economy and highlighting priorities and potential barriers to growth. It is built on a well-respected research programme and work with the sector over a long period, drawing on research and analysis undertaken by ConstructionSkills since 2005 and a range of secondary sources, with particular emphasis on research and forecasting conducted over the past 12 months.

The combined analysis provides a rationale for adopting agreed priorities for action and a basis for bringing about change in the way the sector goes about developing its workforce.

This report covers the main findings for Northern Ireland. Separate reports are available covering the United Kingdom, England, Scotland and Wales.

1.1 Current and Future Skills Priorities

Construction is an important UK sector and ConstructionSkills has a leading role to play in unlocking the talent of individuals and improving the performance of construction firms and professional consultancies.

In the short-term the challenge is to respond to the recession and there is ongoing pressure to survive, but long term skills planning is essential.

Looking forward CITB-ConstructionSkills Northern Ireland has identified four key priorities for addressing the future skills and productivity needs of Northern Ireland's construction industry:

1. Attracting and Retaining Talent

1.1. Increase knowledge of and promote the construction industry to a diverse range of potential new entrants and their influencers
1.2. Work with stakeholders to influence school curriculum to meet the needs of employers, especially with regards to Essential Skills
1.3. Increase the value of new entrant qualifications amongst employers.

2. Developing Talent

2.1. Address skills gaps and shortages within the workforce, in particular, technical, practical and job specific skills
2.2. Encourage appropriate health and safety training, beyond the minimum required by legislation
2.3. Improve the literacy and numeracy levels of those in the industry
2.4. Increase skills in the area of sustainable construction and modern methods of construction
2.5. Increase the number of employees undertaking training and encourage individuals to train beyond the minimum level and that required by legislation, and to achieve the appropriate qualification.

3. Improving Business Performance

3.1. Increase employer and employee awareness of the economic benefits of training to encourage participation

3.2. Promote the need for suitably skilled staff for the upturn and skills for future growth

3.3. Improve management and leadership skills across the industry

4. Strengthening the Skills Infrastructure across Nations

4.1. Investigate ways to reduce the barriers to training experienced by employers.

4.2. Work with training providers to provide an appropriate range of relevant education and training which meets the needs of all employers, in particular specialist sectors

4.3. Continue to review qualifications, standards and training delivery for appropriateness.

2. What are the factors driving the demand for skills?

2.1 What Drives Skills Demand?

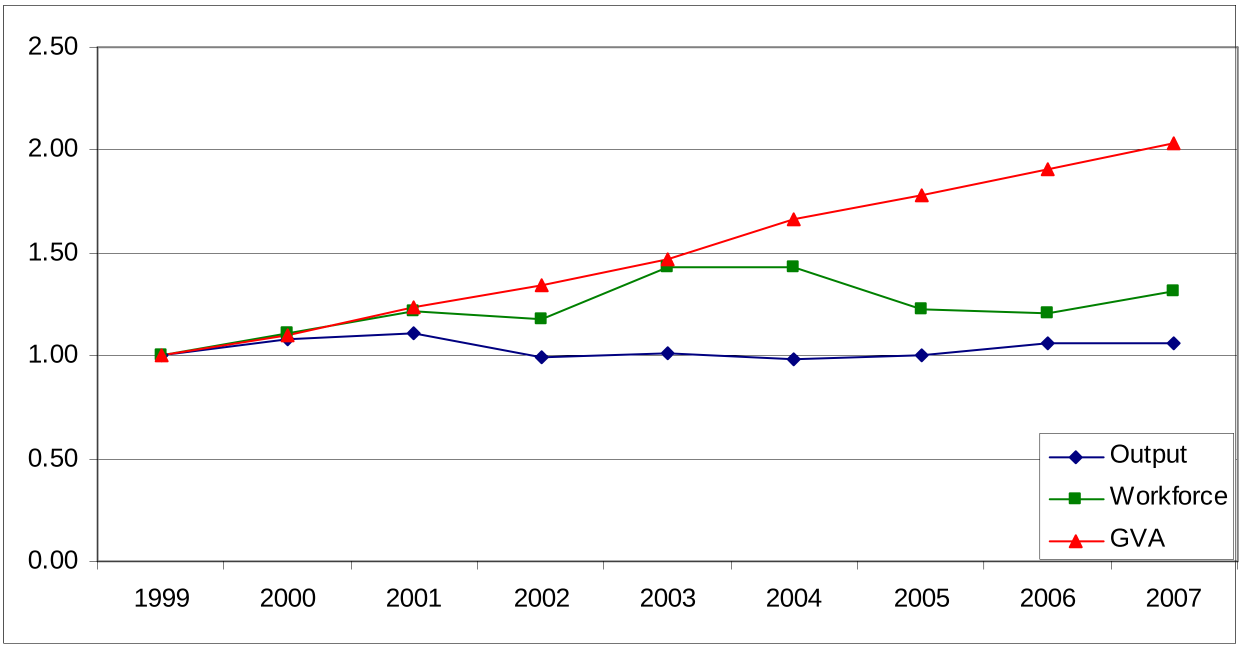
2.1.1 Contribution of the Sector

ConstructionSkills covers a wide range of activities in terms of the planning, design, construction and maintenance of the built environment.

Construction is a pre-requisite to all other economic activity and forms a significant part of Northern Ireland's economy in terms of employment and wealth generation.

Employing 66,207[1] people the combined employment of construction workers and professionals account for 9% of the Northern Ireland workforce, and with output in 2008 of £2.93billion[2] (at constant 2005 prices) it generated £2.35 billion[3] of value added - all of which is actually produced from a fairly fragmented sector.

Chart 1 - Comparison of GVA, Output and Workforce: Northern Ireland Construction Industry: 1999-2007



Source: Office for National Statistics, Labour Force Survey; Construction Skills Network

The construction industry is generally considered a barometer of wider economic health. As a consequence, the signs still present a pessimistic picture in the medium-term.

Unfortunately the industry is notorious for being first into and last out of recession.

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[1] Office for National Statistics, Labour Force Survey, Spring 2009
[2] Construction Skills Network, 2010-2014 Construction Skills Network Labour Market Intelligence – Northern Ireland
[3] Office for National Statistics. Regional, subregional and local gross value added. 2009

2.1.2 Structure of the Sector

A feature of the sector is that there are a small number of large firms and a very long tail of small firms. Across the Northern Ireland construction contracting sector there are 11,885 firms registered for VAT/ operate a PAYE scheme[4].

Furthermore, 27,443 people working within the sector are self-employed[5], at 41% of the total workforce (66,207) this is a much higher share compared to the rest of the UK - England (34%), Wales (37%) and Scotland (21%).

Self-employment is particularly high in the main craft trades where it averages 60% of the workforce.

It is also evident that age is a factor in terms of self-employment. Approximately one in four (39%) self-employed workers are aged 45 and over compared to only 22% being employed directly. This could be an indication that high levels of demand, particularly for highly skilled workers, and sufficiently enticing re-numeration is keeping individuals in the workplace, or that self-employed workers are unable to take retirement in the same way as employees.

Employment status very much reflects the nature of work within the sector. The vast majority of work is undertaken on a project-by-project basis. Consequently, contractors tend to employ a core workforce complemented by short-term contracts as and when they need them (also known as labour only sub-contracting).

The flexibility of such a large pool of self-employed labour together with fixed term or fixed output contracts offers significant financial advantages to prime contractors in respect of labour costs. The disadvantage however, is the lack of investment in skills and qualifications by those who are self-employed and migrate from job-to-job with little security of income and few of the advantages of direct employment. It also means that competition between companies to address their skill gaps and shortages can often lead to a situation where all are vying to employ the same ever-decreasing groups of trained people.

There is a strong tendency for career progression to lead towards self-employment[6], particularly in the main construction trades, where the financial rewards are perceived as being greater. ConstructionSkills' research shows that the incidence of self-employment in Northern Ireland rises from just over one in ten of those with between one and five years experience, to around a third (32%) of those with five or more years experience[7]. This has obvious implications on the future training of both the individuals moving to self-employment, and the ability for the industry to provide sufficient opportunities for those wishing to join the industry and train.

2.1.3 Employment Characteristics

In terms of occupational structure, manual workers dominate, representing 74% of the total workforce. The remaining 26% are non-manual workers, including managers, and all those working in the professional services sector[8]. Northern

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[4] Central Survey Unit of the Northern Ireland Statistics and Research Agency, on behalf of the Department of Finance and Personnel. Northern Ireland Construction Bulletin 1st July to 30th September 2009. 20th January 2010

[5] Office for National Statistics, Labour Force Survey, Spring 2009

[6] ConstructionSkills, Foras Áiseanna Saothair (FÁS) and Central Office of Information (COI). Workforce Mobility and Skills in the Construction Sector in the UK and Republic of Ireland, September 2007

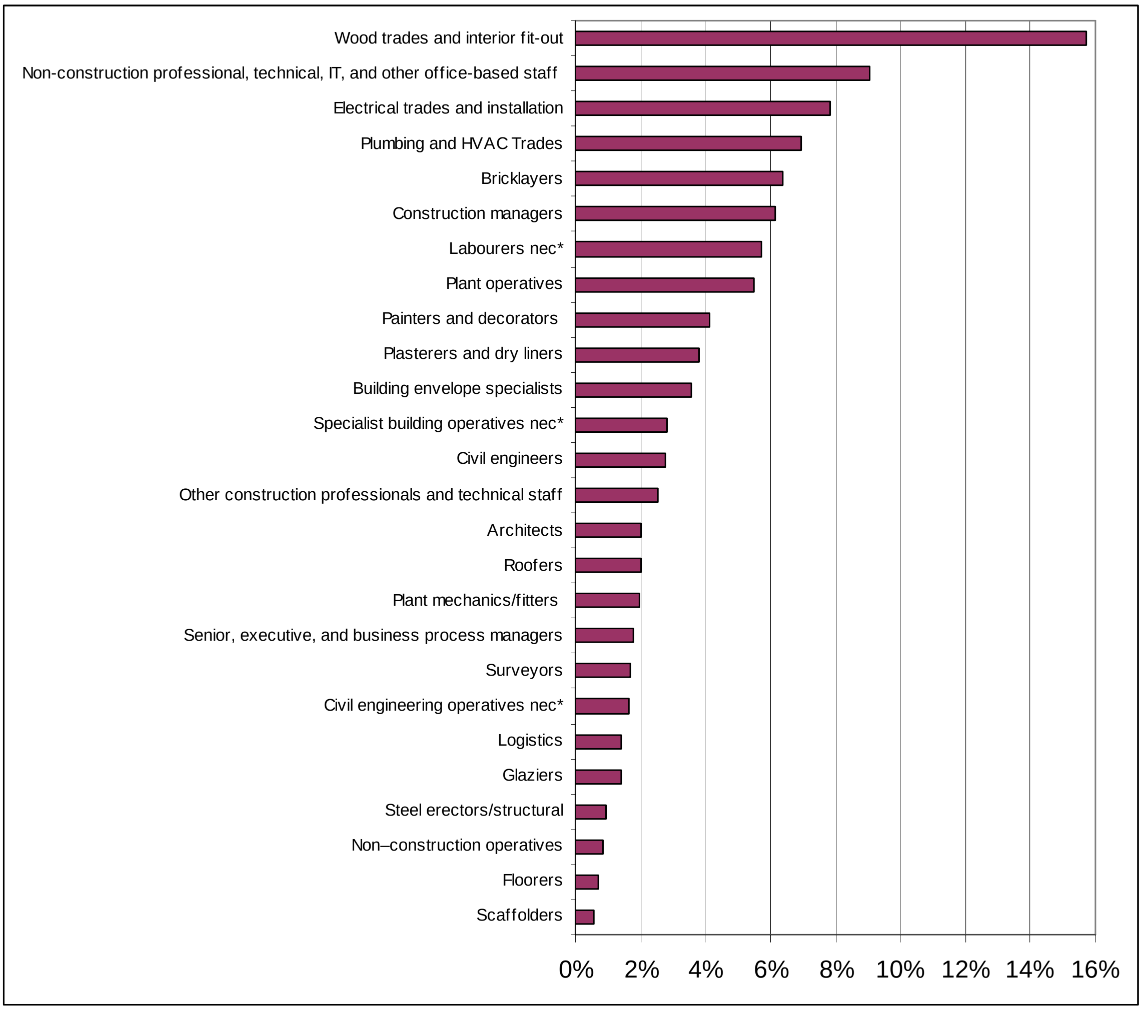
[7] ConstructionSkills, Foras Áiseanna Saothair (FÁS) and Central Office of Information (COI). Workforce Mobility and Skills in the Construction Sector in the UK and Republic of Ireland, September 2007

[8] Office for National Statistics, Labour Force Survey, Spring 2009

Ireland's construction workforce has the largest share of manual workers compared to the rest of the UK – where it varies from 47% in London to 67% in Wales. The largest occupational group, representing 16% of the total construction workforce in Northern Ireland, is wood trades[9].

Patterns of full-time working remain dominant in the industry. The Northern Ireland Quarterly Employment Survey reported that 8% of employee jobs in construction were part-time[10].

Chart 2 - Construction Employment by Occupation, Northern Ireland: 2008



Source: Construction Skills Network Model; Experian

Northern Ireland has an extremely 'self-contained' workforce: Research[11] indicates that the vast majority (99%) of workers had their permanent residence in Northern Ireland and 92% of them were originally from Northern Ireland, higher in each case than for any other nation/region. Only 3% were in temporary accommodation, compared with 7% in the UK/ROI overall. Nine in ten (92%) had spent most or their entire construction career in Northern Ireland, compared with 76% for the UK/ROI workforce as a whole.

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[9] Office for National Statistics, Labour Force Survey, Spring 2009
[10] The Northern Ireland Quarterly Employment Survey, September 2009

[11] ConstructionSkills, Foras Áiseanna Saothair (FÁS) and Central Office of Information (COI). Workforce Mobility and Skills in the UK Construction Sector – Northern Ireland Report, September 2007

Conversely, only 4% of the entire UK/ROI workforce comprised workers whose permanent address was in Northern Ireland, but who were working in another nation/region (overall 18% of the sample were working in a nation/region other than the one they had their permanent address in).

The average (mean) distance travelled to work was 20 miles each way, compared to a UK/ROI average of 24. However, Northern Ireland workers were less likely than average to have extremely short journeys; 14% travelled less than five miles, compared with 24% across the UK/ROI.

Construction workers in Northern Ireland were more likely than average to have only worked on one or two types of construction project (67% compared with 53% on average). Understandably this varied with length of experience, with 63% of those with up to two years' experience having only worked on one type of project, falling to 41% of those with more experience.

2.1.4 Recruitment and Retention

Despite its reputation as a physically demanding industry, construction requires an increasingly diverse, highly skilled and flexible workforce. This applies to both manuals and non-manuals.

The sector has traditionally suffered from an unfortunate image in terms of low pay, poor working environment and little job security, particularly in respect of craft and operative roles. Such perceptions have made it difficult for employers to attract talent. In terms of relative pay, wages for manual and non-manual occupations are above the national average.

The construction industry is notoriously cyclical and very sensitive to changes in the macro-economy. This is reflected in workforce flows. The construction industry has at times of recession lost significant numbers of workers, many of whom do not return. Indeed, there is now a very real risk that the outflow of skilled workers through redundancy and the natural flow to other sectors will adversely impact on the recovery when it eventually comes.

Furthermore, demographic changes means it is unlikely that the age profile of the early 1990s will again be achieved and the industry will have to facilitate entry for older age and minority groups. It is estimated that the number of young people reaching working age (15-19 years old) will fall by 16,000 between 2008 and 2051[12].

2.2 Current Performance - What is Driving Change?

2.2.1 The Economy

Increasing concerns have surfaced in the province regarding the future of funding for the Northern Ireland Investment Strategy and it is these concerns that are leading to a fairly modest rate of output growth between 2010 and 2014. In the short term it is the private sectors that are suffering, such as private housing, industrial and commercial, not only in Northern Ireland but across the UK as a whole. As these sectors begin to recover when the economy improves, the need to address ballooning public debt will lead to public expenditure cuts. Unfortunately for Northern Ireland, its economy is more reliant on the public sector than the UK as a whole, as is

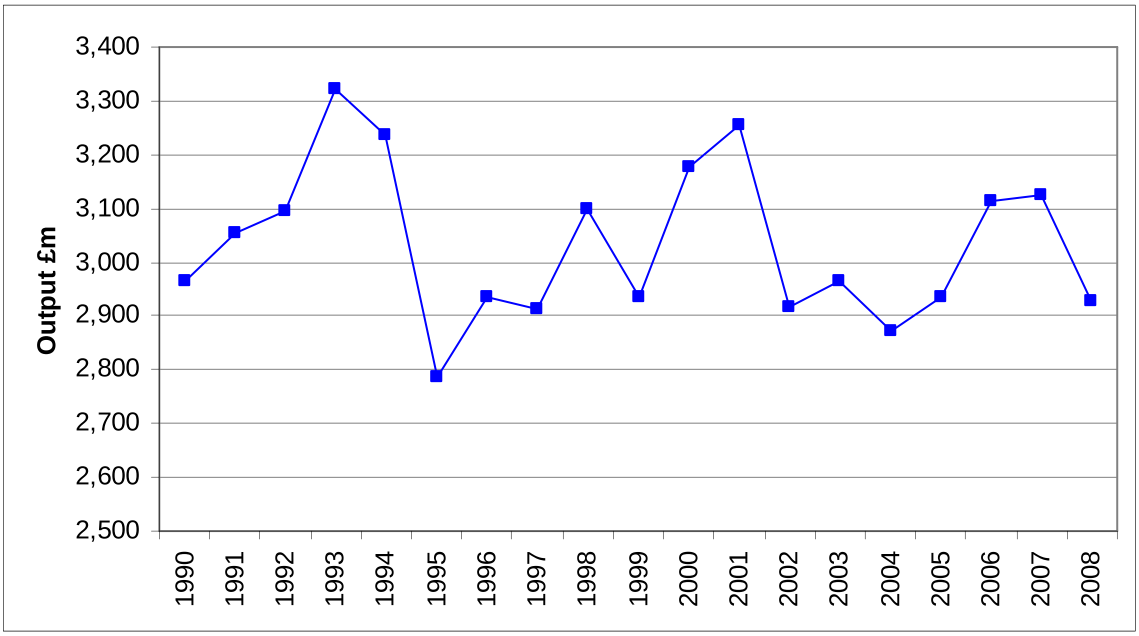
[12] NISRA. Project Population (2008 based) by sex and age 2008-2051. www.nisra.gov.uk

its construction industry and thus public expenditure cuts are likely to affect the province disproportionately.

Construction output in Northern Ireland totalled £2.93bn in 2005 prices in 2008, a 6% decline on the previous year. This was mainly as a result of a very significant fall off in private house building, higher than across the UK as a whole as the province's housing market all but collapsed. This was the main reason for the 7% fall in new work, while the level of repair and maintenance (R&M) activity remained stable.

It remains the case that the trend in construction output in Northern Ireland has largely been flat since 2000, and in fact the onset of the recession means that 2008's outturn was nearly 8% down in real terms when compared with 2000.

Chart 3 - Construction Output in £m (2005 prices), Northern Ireland: 1990-2008



Source: Office for National Statistics, Labour Force Survey; ConstructionSkills Network; Experian

Overall, the effect of the recession has resulted in reduced construction output in the short-term although the medium to long-term forecast is for growth of around 1.1% per year between 2010 and 2014[13].

The 1.1% annual average output growth rates leads to little change in demand for many occupations between 2010 and 2014 once projected productivity gains are taken into account. This is especially true among construction professionals. Anecdotal evidence also exists of a considerable amount of short-time working in the industry, which means that already existing excess capacity will need to be taken up before employers look to take on new staff as the projected recovery starts to strengthen.

Among employers that have laid staff off as a result of the recession, the cutbacks equate to a reduction of a third (33%) in their workforce compared with 6 months earlier[14]. The most common occupation in which staff had been laid off was

[13] ConstructionSkills and Experian, Construction Skills Network, 2009
[14] ConstructionSkills, Employer Panel: Employer Attitudes and Motivations to Learning and Training (Wave 8), June 2009

carpenters and joiners (28% of companies that had laid staff off because of the recession had reduced the number of such staff they employ), followed by labourers and general operatives (23%), plant and machine operatives (16%), and electricians (14%).

Encouragingly though ConstructionSkills' research indicates that the majority of firms are confident that they will ultimately survive the current recession: Less than one in ten (9%) are very confident of survival and a further two-thirds are fairly confident (63%)[15].

Certainly with evidence of recovery in the global economy attention is moving from the depth of the recession towards its exit path. However, the sector will emerge from the recession into a much changed social and economic landscape of high levels of unemployment, particularly amongst 16-29[16] year olds and low-skilled workers, reduced household wealth, significant public spending cuts, and more prudent lending from the banks.

Consequently, the spotlight is very much focussed on how construction can adapt to the changes without undermining potential for future growth. Recovery from previous recessions has been hindered by skills gaps and shortages caused by job losses. Whilst contractors have endeavoured to retain capacity through the current recession, experience suggests that skills gaps and shortages will become evident as growth returns to the sector.

The exodus of skilled workers from the industry through redundancy and retirement will also impact on the ability of the industry to transfer knowledge from experienced workers, potentially further hindering long-term growth.

2.2.2 Current Activity

Northern Ireland has a significantly different structure to its construction industry than the rest of the UK, with a very small R&M sector. In 2008 it accounted for only 18% of output in the province compared with 42% for the UK as a whole. In this respect the structure of the industry in Northern Ireland is more similar to that in the Republic of Ireland, where the R&M sector also takes a relatively small proportion of the construction cake (26% in 2008).

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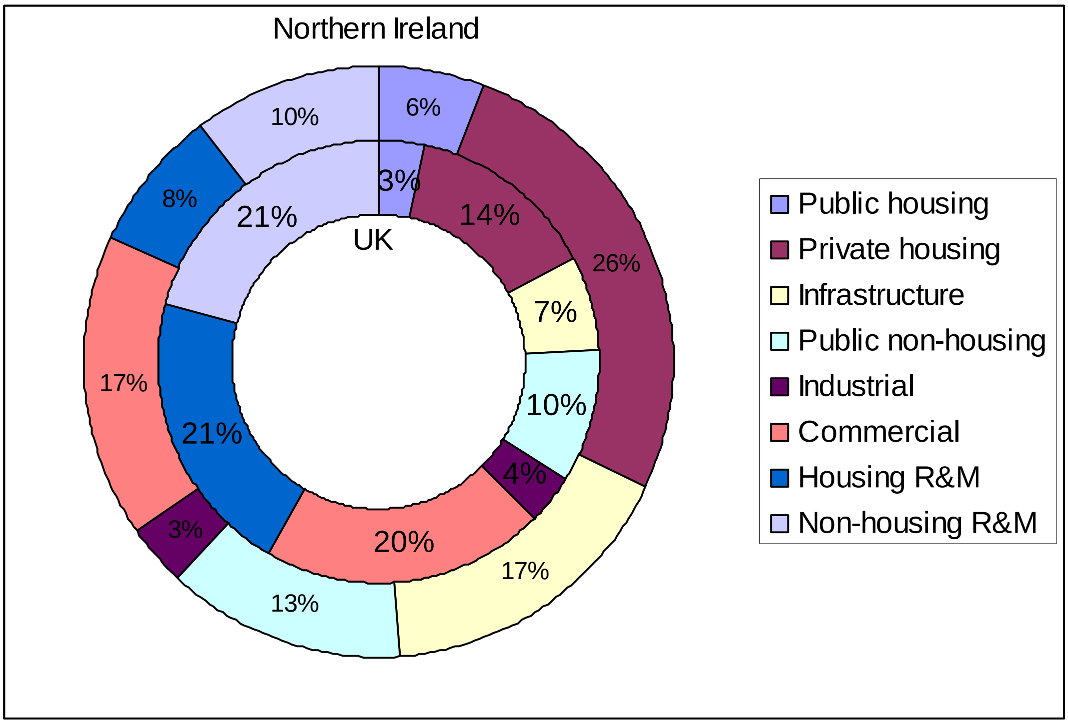
[15] ConstructionSkills, Employer Panel: Employer Attitudes and Motivations to Learning and Training (Wave 8), June 2009

[16] DETI. Northern Ireland Labour Force Survey, July – September 2009. 62% of unemployed persons are aged 16-29.

Chart 4 - Construction Industry Structure 2008: Northern Ireland v UK



Source: Construction Skills Network; Experian

Construction output totalled £1.43bn in 2005 prices in the first half of 2009, similar to the level in the second half of 2008 and 4% down on the same period of that year. This compares with falls of nearly 9% and 13% respectively over the same periods in Great Britain, suggesting that the industry has held up better in Northern Ireland than in the rest of the UK. The R&M sectors have been stronger than the new work ones, with little or no fall in the former over the first half of 2009. However, even in the new work sector, there are very divergent performances, with strong growth in public housing, infrastructure and public non–housing output, and equally strong declines in private housing, industrial, and commercial activity. The pattern of activity across the sectors strongly suggests that, at least in the short term, the Northern Ireland Executive is delivering a good stream of work from the province's Investment Strategy. Overall the expectation is that construction output in the province will have declined by 4% in 2009, compared to a decline of around 13.0% for the UK as a whole.

Over the next two years, the sectors which are driven by public finance, which for Northern Ireland includes infrastructure, are expected to continue to outperform the private ones. The exception will be industrial construction, where a very sharp fall in 2009 will take the output level down to a historic low from which it is unlikely to fall further.

In the infrastructure sector, the M1/Westlink upgrade was completed five months ahead of schedule, but still on site are the dualling of the A1 north of Newry and the Dungannon to Ballygawley section of the A4, due to be completed towards the end of 2010. Invitations to tender have been issued for three lots of A5 dualling, each worth between £140m–£180, and the £80m–£90m dualling of the A8 between Belfast and Larne. The expectation would be that these projects would come on site before the end of 2011.

In the public non–housing sector, work is underway on a raft of projects, including the new campus for Belfast Metropolitan College in the Titanic Quarter, the £270m Acute hospital for the South West due for completion in 2012, and six regional colleges and skill centres across the province with work estimated to be worth between £59m and £86m.

As is the case across the UK as a whole, industrial and commercial construction activity is likely to suffer in the short term, for the former, manufacturers remain very negative regarding investment intentions while for the latter, developers are finding it difficult to attract financing for office, retail and leisure projects in the current economic climate. However, there is increasing use of Public/Private Partnership procurement routes in the province, and the delivery of programmes of work such as the four new schools at Portglenone, Carryduff, Knock and Downpatrick, worth around £45m will help boost commercial output.

Overall, growth in Northern Ireland over the short term (2010–2011) is projected to average a healthy 2.4% a year, on the back of good growth in the short term in the public sectors.

2.2.3 Constraints on Activity

Whilst the volume of activity in the sector is highly cyclic there is also significant in-year variation with seasonal peaks and troughs corresponding to external constraints such as lack of demand, labour shortages, poor weather and materials shortages.

Unsurprisingly, a lack of demand (low volume of enquiries and new work) was reported the most significant impact of the economic downturn by firms in Northern Ireland.[17] When asked which factors other than the downturn could constrain their business in the next year, one in three firms (30%) cited a lack of credit/finance, while only 1% foresaw recruitment difficulties.

2.2.4 Globalisation

The global nature of the recession has affected markets and trade worldwide, and construction has suffered in the vast majority of developed economies.

The worldwide decline in construction activity has most notably impacted on UK professional services, and has been particularly visible in the reduced demand across the Middle East and Asia. Construction supports high-value net-export services such as engineering consultancy and design, architectural activities, and property management, which have been hit particularly hard during the recession.

As well as exporting skills and expertise the UK construction industry has also benefited from migration. Construction is, and always has been, a migratory industry. There is an expectation that people will go where the work is. This applies to both foreign nationals entering the UK labour market and UK citizens finding work abroad. The experience is also closely linked to economic cycles. Indeed, the tradition of Irish workers finding employment in the UK during periods of high demand and the experience of UK workers migrating to Germany during the early 1980s when work was scarce at home is indicative of the fact that migration is linked to fairly wide economic influences and that international travel has been common for some time. However, in today's globalising world, itinerant construction workers come from all over Europe and beyond.

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[17] ConstructionSkills, Employer Panel: Employer Attitudes and Motivations to Learning and Training (Wave 9), December 2009

Until the recession increasing demand for building opened up job opportunities for economic migrants and the prospect of continuous work made the industry an attractive proposition, particularly for transient and unattached workers. Consequently the construction industry, like many other industries, has witnessed an increase in the use of migrant labour to fill temporary and emerging labour gaps, a process intensified by the expansion of the EU, but by no means limited to EU citizens.

Despite the recession the impact of migration on the UK economy continues to attract intense debate and attention. This is no more apparent than in discussions of the scale of migration into the construction industry, and the impact that these migratory flows may be having on the performance of the sector, in addition to the wellbeing of the workers within it.

Whilst it is extremely difficult to get a full picture of the extent of these migratory flows we can draw some tentative conclusions about the numbers of migrant workers in construction, their countries of origin, and the kinds of skills they are bringing with them.

ConstructionSkills research suggests that in June 2009, 12% of employers in Northern Ireland said they employed or had employed in the last six months a worker who was not a UK citizen or passport holder. Whilst this is higher than in December 2008 (10%), it is lower than the findings in June 2008 and November 2007 (20% and 14% respectively). The likelihood of employing non-UK workers was higher in Professional Services firms and larger firms – rising from 5% of small firms (2-9 staff) to 82% of large firms (100 or more staff)[18] .

For the majority (43%) of firms there was no particular reason for employing non-UK workers. When there was a motive it was usually as a response to skills shortages (29%); non-UK workers having the right skills for the job (14%) and tending to be better motivated (12%).

Attitudes towards employing non-UK workers changed significantly between 2008 and 2009. There has been a large reduction in employers expecting an increase in non-UK workers (down from 59% in June 2008, to 4% in August 2009). Additionally employers who felt that non-UK workers are more highly skilled has halved since December 2008, from 18% to 9%. However, there has been an increase in the proportion of employers who felt that non-UK workers were more motivated (from 42% to 66%).

Evidence from the report's Labour Force Survey analysis states that although there is a reasonably even spread of migrant-dense sectors across the economy, some sectors (for example, construction) have become migrant-dense due to large increases in migrants since 2004. Although there are 28 migrant-dense sectors, there are sizeable concentrations of migrants in several key sectors. For migrants that arrived since 2004, the top five MD sectors include construction where 11% of migrants work. Furthermore, it is suggested that eastern European males made a notable contribution filling labour shortages during the construction boom.

It is difficult to predict the future flows of migrant workers as there are many influencing factors. However, it is anticipated that increasing globalisation of goods and services and the further integration of emerging economies will increase the

[18] ConstructionSkills, Employer Panel: Employer Attitudes and Motivations to Learning and Training (Waves 6,7,8 and 9), 2007-2009

supply of low skilled workers and overseas production activities will increase the competitive pressures on firms and the indigenous workforce.

Globalisation has in addition led to increased international competition and in turn demand for higher skills. In construction this is particularly the case for professionals such as architects and civil engineers. The UK higher education and training sector has become a global leader in the supply of skills. The recession, although leading to immediate job losses, has meant people returning to or extending their education and in turn has fuelled increased numbers of course applicants.

Table 1 - First Degree Built Environment Student Enrolments in Northern Ireland, United Kingdom Domiciled and Non-United Kingdom Domiciled: 2007/08

Subject	Total	UK Domiciled	Non-UK Domiciled	%Non-UK Domiciled
Civil Engineering	246	186	60	24%
Architecture	186	162	24	13%
Building	364	345	19	5%
Planning (urban, rural & regional)	109	109	0	0%
Total	**905**	**802**	**103**	**11%**

Source: Higher Education Statistics Authority (HESA) 2009

The latest available data (2007/2008) from the Higher Education Statistics Authority (HESA) shows that at higher education institutions in Northern Ireland, just over one in ten of course enrolments are from Non-UK Domiciled students. Proportions are highest for Civil Engineering and Architecture courses at 24% and 13% of students respectively, although there were none on a Planning degree.

These findings are unsurprising as Northern Ireland is unique, in sharing a border with a country outside the UK. Indeed further analysis of enrolments at Higher Education Institutions in Northern Ireland reported that the largest group of students from outside the province were domiciled in the Republic of Ireland (7%) while the remaining students were from Great Britain (2%), Other EU countries (1%) and from Other Overseas countries (3%)[19].

2.2.5 Technology

New technologies and innovations are generally adopted if, and only if, there is a sympathetic set of business, legislative or cultural conditions. An inadvertent benefit of the current recession is that it may provide the catalyst for innovation within the construction industry.

A sustained period of strong demand for construction has resulted in relatively low levels of innovation. However, significant exposure to the economic crisis, along with increased regulation and growing market pressure, means that the construction industry must now seriously consider technology in order to meet its customers' and regulatory expectations.

The recession has shaken a lot of weak firms out of the sector and some companies will use this as an opportunity to reorganise and innovate. Levels of competition have increased significantly, margins have been reduced and diversification is rife as

[19] Department for Employment and Learning. Statistical Bulletin - Student enrolments on Higher Education courses: Northern Ireland 2007/08

contractors fight for work. This has resulted in firms looking to generate the maximum return on all potential projects, producing an opening for technological and process change.

Over two fifths (44%) of companies from Northern Ireland questioned on ConstructionSkills' Employer Panel had expanded into different parts of the market or changed the focus of their work in response to the recession[20]. The most common areas expanded into included smaller jobs (17%), building refurbishment / installation (15%), civil engineering (9%), more private (7%) or public sector work (6%), and moving into the area of extensions and conversions (6%).

In terms of recovery there will be a renewed emphasis on ensuring efficient working. Lower levels of employment will initially result in a need to achieve more with less and this presents an opportunity for product and process innovation. However, the long-term ambition to drive up productivity is expected to facilitate and be facilitated by increased technological change, which will in turn transform some occupations in respect of both the numbers required and the activities undertaken.

Over the past decade significant developments have occurred in the prefabrication of structures and components, the standardisation of production, the development and application of new (and out-of-sector materials) and the better integration of information technology in the business and construction process.

The shift towards off-site manufacturing is likely to mean that on-site construction increasingly becomes more of an assembly process, suggesting that the industry will see a move from construction to fitting. Prefabricated components and assemblies, designed for ease of installation as well as improved performance and cost, will enable greater output from a potentially smaller workforce and increase safety. Whilst this has a particular significance for both manual and non-manual occupations, the implications for manual occupations are probably more telling. This is because their size and scope encompass such diverse occupations and, secondly, their skills and training are built around clearly demarcated craft traditions with a largely bespoke approach to construction.

The future trend towards prefabrication will increasingly see trades move to a factory environment; a move that whilst creating clean and safe working conditions will be resisted by some. This signals a debate on where the workforce will come from to produce components – the construction sector or the manufacturing sector – and what skills they will need.

If it is the construction sector, as anticipated/proposed, this will inevitably result in the erosion and revision of some traditional trade boundaries and the introduction of a more generalist or multi-skilled approach to the construction process. Whilst current off-site technology certainly draws upon traditional craft skills, a factory-based approach, as employed in the manufacturing sector, will probably result in operatives performing tasks that would traditionally be associated with other trades. It will also require new skills of quality control in production and working to increased tolerances on-site, particularly as the approach becomes more mechanised. In this respect, technological change will offer the opportunity to redefine a number of existing roles within the industry, as well as offering opportunities in new areas.

[20] ConstructionSkills, Employer Panel: Employer Attitudes and Motivations to Learning and Training (Wave 8), June 2009

Growth in prefabrication also has particular consequences for the non-manuals as the supply chain broadens and integration between design and production increases. Architects and designers will need to work more closely with suppliers and contractors to integrate new materials into the design. Construction managers will need to make more use of information technology to schedule work, and will require the necessary interpersonal and business skills to enable collaborative working amongst multi-disciplinary teams. It is also reasonable to assume that a greater need for enhanced logistical skills will almost certainly become apparent as more and more components are brought to site.

The site assembly of prefabricated elements will generally require a more stringent approach to quality and a greater understanding of the construction process as a whole. Logistics and planning will become more crucial as time is compressed and individual operations become more critical. Transport and handling will require higher skills.

The use of materials and products from other industries may see a crossover of employees bringing a new range of skills and knowledge into construction. As systems become more complex, there may be a move towards ultra-specialisation in niche markets. Indeed, accompanying the more generalist approach to construction is another more specialist approach, which sees the consolidation of very specific skills into relatively small occupations. Both approaches represent the industry's need to increase productivity, but have very different implications for the workforce development.

Management and supervisory skills will become increasingly important. Improved business management, personnel and training will be required to support changes in industry structures and technology.

Many of these changes have, of course, already begun, and will continue in an evolutionary way to affect how tasks are performed on site and what skills are required of the workforce as a whole.

There are however structural barriers to innovation in the sector that will impede and slow change.

2.2.6 Demographics

Population characteristics (such as size, growth, density, distribution, age, gender and ethnicity) drive supply and demand. Demographic changes shape the expectations of customers, as well as influencing the ability of industry to meet their demands. The needs of the population in terms of housing, healthcare, education, infrastructure, work and leisure drive construction outputs, yet these are only achievable if there is sufficient capacity in terms of labour and skills.

Increasing life expectancy, an ageing and more culturally diverse population, intensified urbanisation, increased mobility within the workforce and a growing rate of household formation present the construction industry with some major demographic challenges.

The population of Northern Ireland is projected to increase by 7% by 2018[21], mainly through net inward migration, together with increasing rates of household formation is driving the demand for homes and public services.

[21] Office for National Statistics, National Population Projections 2008-based, 21st October 2009

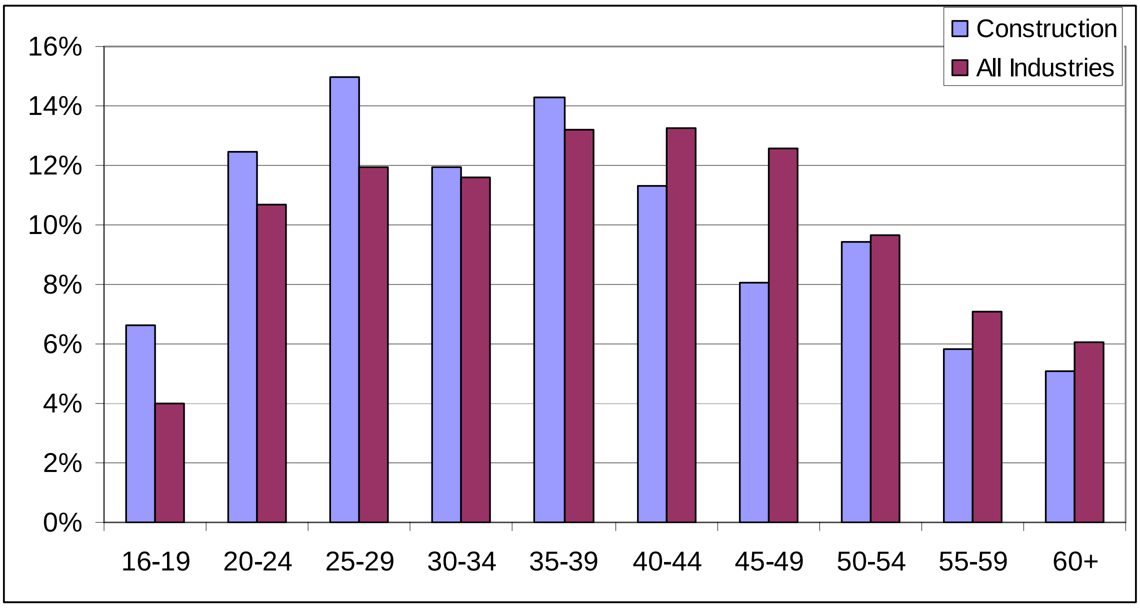
Population growth combined with changing age structures and a continuing trend towards smaller households means that one-person households are projected to rise from 199,000 in 2006 to 225,100 in 2011 (13%). In contrast the number of households with four or more persons is projected to fall slightly from 171,200 in 2006 to 169,200 in 2011 (1%)[22].

It is estimated that between 2001 and 2025 an additional 250,000 housing units are required[23], yet less than 6,500 new dwellings were started in 2008/2009[24]. This clearly indicates the scale of the increase in production which must be sustained if future demands are to be met. This further demonstrates the vital role construction plays in fulfilling the expectations of both the Government and society as a whole.

Northern Ireland, like other industrialised countries, has an ageing population. Advances in life expectancy mean that successive generations are living much longer. This not only affects what they might demand, but also what the construction industry can provide in terms of the built environment.

The age profile of the construction industry in Northern Ireland differs quite significantly to the overall economy by having a much younger workforce, with an age profile that is biased towards the 25-29 age groups[25].

Chart 5 - Age Profile of Construction Industry v All Industries, Northern Ireland: 2009



Source: Office for National Statistics, Labour Force Survey 2009

This situation is further highlighted when the age profile is compared across the UK construction industry.

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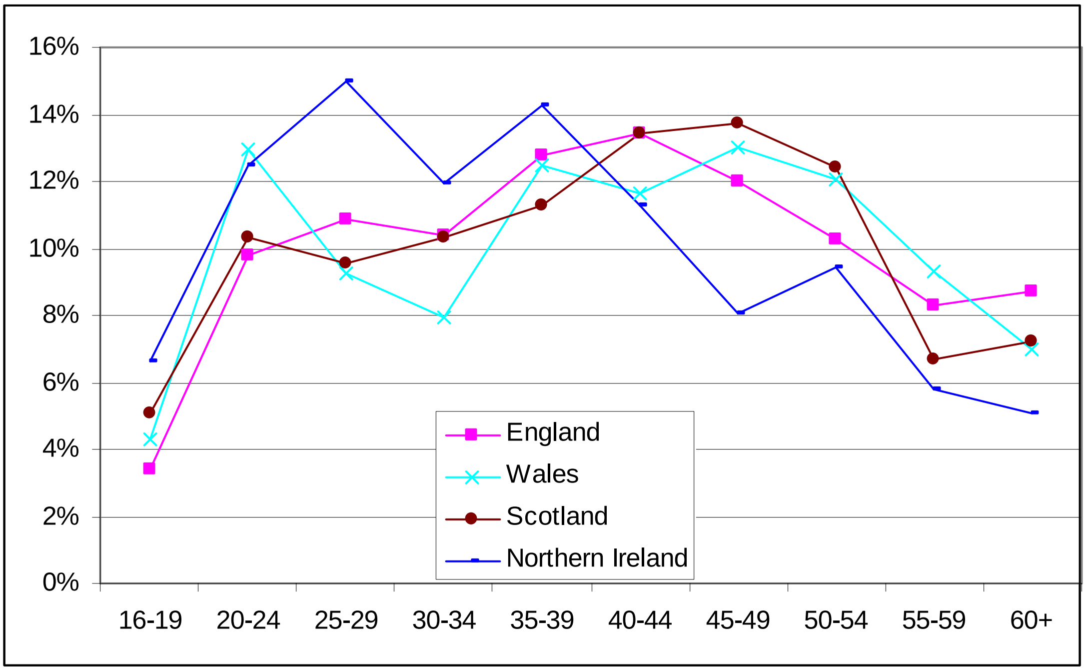
[22] Northern Ireland Statistics & Research Agency. Household Projections for Northern Ireland 2006-based. Press Notice Thursday 13 March 2008
[23] Department for Regional Development. Shaping our Future: Regional Development Strategy 2025
[24] Department for Social Development. Northern Ireland Housing Bulletin. 1st July to 30th September 2009
[25] Office for National Statistics, Labour Force Survey, Spring 2009

Chart 6 - Age Profile of Construction Industry, All nations across the United Kingdom: 2009



Source: Office for National Statistics, Labour Force Survey 2009

The under-representation of women remains a priority issue for the construction industry in Northern Ireland.

Currently women account for 6% of the total Northern Ireland construction workforce. The majority of women (87%) work in non-manual roles (predominately in a clerical capacity) whereas the remaining 13% undertake a manual trade. Overall however, female manual workers equate to less than 1% of the whole construction workforce in Northern Ireland[26]. Employers have indicated a number of reasons for difficulties in encouraging females to enter into the construction industry including the nature of the work, and have cited the need for schools to promote the construction sector as a viable career for everyone instead of consistent endorsement of the traditional teaching, science and health professions as careers for females. Employers are often reluctant to employ female staff being concerned about the lack of toilet facilities on site, the potential expense of maternity leave, and the possibility of mixed relations in the workplace which may cause unnecessary hassle for other employees and the employer. The promotion of the construction industry to women can only occur if the negative perceptions of the industry are dispelled and the on-site conditions addressed in order to accommodate women[27]

2.2.7 Legislation

Legislation remains a key driver for change across industry sectors as a whole and within the construction sector specifically.

Policy around improving the quality of work (working time directive, parental rights, minimum wage, health and safety) and reducing damage to the environment (planning legislation, climate change, carbon reduction commitments, aggregate tax etc) is changing the way the industry works. Although legislation changes are likely to

[26] Office for National Statistics, Labour Force Survey, Spring 2009
[27] CITB Northern Ireland. Research into Training and Skills Needs. February 2007

have a positive impact on the workforce, as they generally promote improved employment conditions for the existing workforce and potential new starters, these changes are also likely to increase operational costs.

Furthermore, under current government plans the pension age for men was due to go up to 66 in 2026, to 67 in 2036 and by a further year each decade. The women's pension age was due to rise to 61 next year, 62 in 2012, 63 in 2014 and 64 in 2016.

As with any sector, change resulting from legislation is generally likely to be gradual as firms respond and get to grips with the implications of new legislation. In the construction sector particularly, due to the high proportion of small firms, high levels of self-employment and wide use of sub-contracting changes are likely to take time to filter through.

Despite all the existing legislation, health and safety remains a key concern for the construction sector. In terms of fatalities, the construction industry in Northern Ireland had the second highest incident rate per 100,000 workers after the agricultural industry (6.4 and 19.8 respectively in 2007 / 08). In 2007/2008 the number of accidents resulting in absence over 3 days was 199, the number of major accidents was 128 and the number of fatalities was five. Although the figures fluctuate slightly from year to year there is little general improvement and 2007/2008 saw an increase in the total number of incidents recorded (from 278 in 2006/2007 to 332 in 2007/2008)[28].

It is hoped that changes to legislation and the introduction of competency based certification schemes, such as the Construction Skills Register (CSR) or equivalent, will improve safety within the industry. However, this largely applies to major contractors and their supply chains. The absence of a compulsory, enforceable and publicly-recognised registration scheme means that large parts of the industry operate with relatively little regulation, affording little protection to workers in terms of occupational health and safety.

Legislation relating to the UK construction industry as a whole is discussed in the UK report[29]. Whilst not exhaustive, the following contains key policy initiatives relating to climate change, sustainability and building regulations which are specific to Northern Ireland:

- **A sustainable Development Strategy for Northern Ireland;** provides a government framework for promoting sustainable development within Northern Ireland
- **Planning Policy Statement (PPS) 21: Sustainable Development in the Countryside;** aims to balance the needs of rural communities with the need to protected the environment.
- **UK Climate Change Bill to Northern Ireland;** sets key statutory targets for reducing carbon monoxide emissions
- **Building Regulations Legislation.** Building Regulations legislation falls into two distinct categories: Primary Legislation and Secondary Legislation (Statutory Rules)
- The primary legislation for building regulations within Northern Ireland is the **Building Regulations (Northern Ireland) Order 1979 (as amended 1990 and 2009)**.
  - Statutory Rules for building regulations in Northern Ireland:

[28] Northern Ireland Construction Bulletin. 1st April – 30th June 2009
[29] ConstructionSkills. Sector Skills Assessment for the Construction Sector 2009 – UK Report

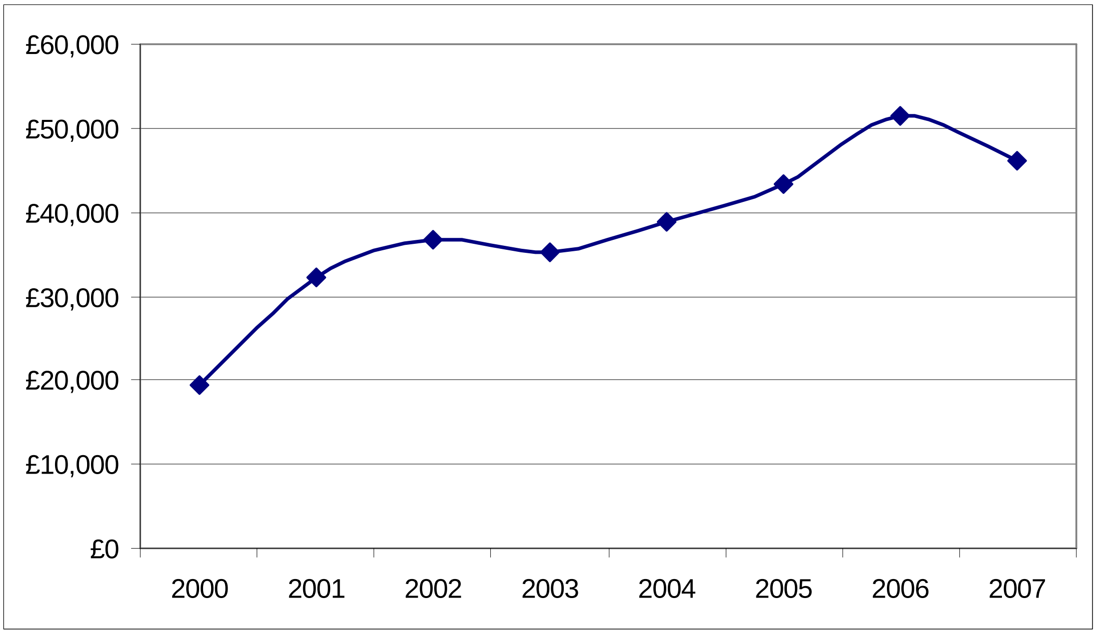
- **The Building Regulations (Northern Ireland) 2000**; impose certain mandatory requirements in relation to the construction, alteration or extension of a building and certain services and fittings. Since they came into operation on 1 April 2001 they have been amended by-
- **The Building (Amendment) Regulations (Northern Ireland) 2005**; amended Part E: Fire safety
- **The Building (Amendment) Regulations (Northern Ireland) 2006**; amended Part F: Conservation of fuel and power, Part L: Combustion appliances and fuel storages systems and Part R: Access to and use of buildings
- **The Building (Amendment No.2) Regulations (Northern Ireland) 2006**; further clarified the intent of the preceding amendment
- **The Energy Performance of Buildings (Certificates and Inspections) Regulations (Northern Ireland) 2008**; amended the building regulations to substitute references to Energy Rating Notices with Energy Performance Certificates.
- **The Building (Amendment) Regulations (Northern Ireland) 2010**; will come into operation on 31st March 2010.and will amend Part D (Structure) and Part J (solid waste in buildings).

2.2.8 Productivity and Industry Performance

Productivity improvement remains a central pillar in the overall ambition to up-skill the construction workforce, although efforts to improve performance have also focussed on changing the structure and *modus operandi* of the industry.

Between 2000 and 2006 the GVA per employee in Northern Ireland's construction industry increased significantly, but has decreased slightly in 2007; although it is still more than double its 1997 level. This however may have less to do with operational improvement and more to do with the incompleteness of the statistics in respect of industry coverage, increased demand and inflated land prices that have predominated over the period.

Chart 7 - Gross Value Added Per Employee, Northern Ireland: 2000-2007



Source: Northern Ireland Annual Business Inquiry, 2009

2.3 Inter-Sector Comparisons

Inter-sector comparisons show the size of construction's contribution to the economy and also its heavy reliance on labour input compared with others. The following industries were selected as they are manufacturing as opposed to service; reasonably labour intensive and reasonably traditional.

Table 2 - Sector Comparison of Gross Value Added, Northern Ireland: 2007

Industry	Turnover (£m)	Approx GVA (£m)	GVA/head (£)
Construction	6142	2363	46020
Agriculture, hunting, forestry and fishing	154	81	27385
Mining and quarrying	317	84	37012
Manufacturing	15031	3967	45493
Electricity and gas and water supply	1347	632	367026
Transport and storage	2767	1243	42769

Source: Northern Ireland Annual Business Inquiry, March 2009

To the extent that comparisons between industries on purely economic measures are valid, the above table suggests that construction is around the upper quartile in GVA per head for those industries selected, yet overall it is making almost 30 times the contribution to the economy as Agriculture and Mining.

3. What Have Been the Recent Trends in the Supply of Skills?

3.1 What Has Been the Level and Type of Skills Entering the Labour Market?

3.1.1 The Contribution of Training and Education

The construction industry in Northern Ireland is relatively well catered for in terms of the supply of skilled new entrants via education and training. The latest data available which provides the complete training and education picture[30] (2007/2008) shows approximately 10,500 enrolments onto construction courses at both further and higher education. Taking drop-out and non-completion into account this still provides the industry with a large supply of skilled workers.

The majority of trainees at further education are training towards a Level 2 qualification in wood trades, while at higher education the most popular course is a first degree in building - directly comparable to the findings across the UK as a whole.

3.1.2 Apprenticeships

Inherent within training supply figures are those trainees undertaking an apprenticeship. Recent statistics show that 1,412 construction apprenticeship starts were recorded in the academic year 2009/2010; the majority of these (76%)[31] are being undertaken at a further education college.

Table 3 - Apprenticeship Starts in Northern Ireland: 2009/2010

Occupation	Starts
Carpenters and Joiners	701
Bricklayers, Masons	202
Construction Trades NEC	6
Painters and Decorators	95
Plasterers	62
Roofers, Roof Tilers and Slaters	2
Floorers and Wall Tilers	52
Construction Operatives	14
Plumbers, Heating & Ventilating Engineers	277
Total	**1412**

Source: DELNI, snapshot taken 16 Nov 2009

Achievement rates at Level 2 vary between 44% and 59%. At Level 3, achievement rates are even poorer at 23% to 27%. Clearly there are major issues in terms of retention and progression of apprentices, however only anecdotal evidence exists in terms of the reasons for this. Typical reasons are the high theoretical content of training programmes, associated issues around essential skills, the marginalised practical content of courses because of other framework requirements, NVQs being undervalued by employers and young people and not an absolute requirement for employment, the cost to the employer and the potential loss of earnings for the apprentice when on day release[32].

[30] Department for Employment and Learning NI; Higher Education Statistics Agency
[31] Department for Employment and Learning NI
[32] ConstructionSkills Northern Ireland, Sector Skills Agreement for the Construction Industry in Northern Ireland 2009-2013

3.1.3 Skill Levels in the Construction Industry

The following table shows the highest qualification level achieved by the construction industry workforce in each geographical area across the UK and compares the Northern Ireland construction industry workforce to the workforce across all industries in Northern Ireland.

Table 4 - Construction Industry Workforce Qualifications v All Industries, Northern Ireland: 2009

	Construction Industry					All Industries (NI)
	UK	**England**	**Wales**	**Scotland**	**Northern Ireland**	
S/NVQ level 4 & above	30%	30%	24%	34%	17%	32%
S/NVQ level 3	17%	17%	22%	18%	15%	15%
Trade Apprenticeships	12%	11%	12%	16%	28%	8%
S/NVQ level 2	12%	12%	10%	11%	11%	15%
Below S/NVQ level 2	11%	12%	8%	7%	*5%*	10%
Other qualifications	9%	10%	11%	6%	*6%*	5%
No qualifications	9%	8%	12%	9%	18%	16%
	100%	100%	100%	100%	100%	100%

Note: Figures in italics are based on small bases sizes, and caution is required when interpreting these.
Source: Office for National Statistics, Labour Force Survey

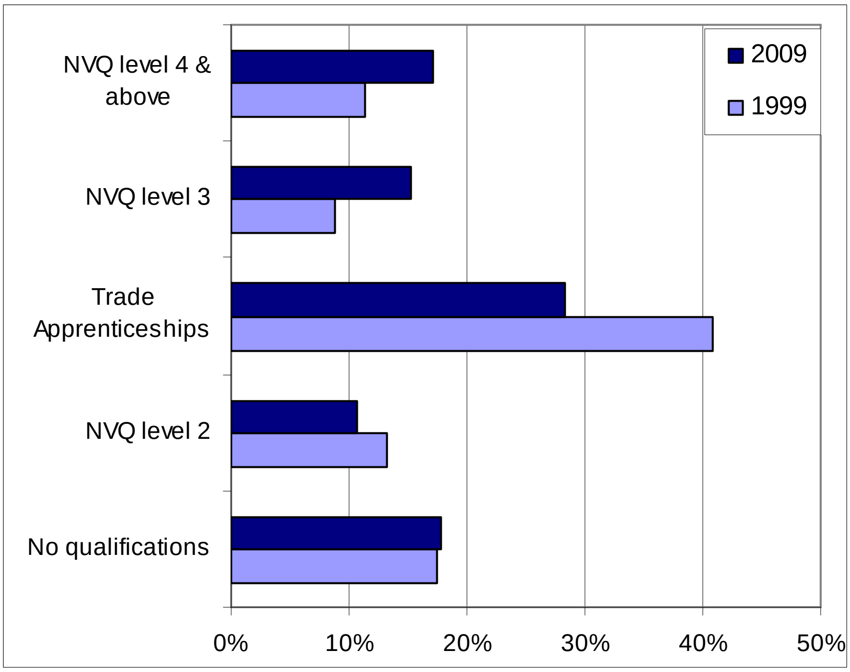
From the table it is evident that across the UK construction industry:

- Apprentice training is substantially more popular in Northern Ireland than the rest of the UK.
- Northern Ireland has the smaller share of workers qualified to S/NVQ level 4 and above.
- Northern Ireland has the largest proportion of workers with no qualifications.

Compared to all industries in Northern Ireland the construction workforce has a significantly higher proportion trained as an Apprentice (28% v 8%), but nearly half the share trained to Level 4 and above (17% v 32%).

There have been quite dramatic changes to the qualifications of the construction workforce over the past decade as the chart below demonstrates.

Chart 8 - Qualifications of the Construction Workforce, Northern Ireland: 1999 v 2009



Source: Office for National Statistics, Labour Force Survey

The improvements in the overall skills profile of the industry are encouraging and are progress towards *The Leitch Ambition*[33]. Leitch recommends that by 2020 - 40% of the workforce should be operating at level 4 and above; 90% should be qualified to at least level 2; the balance of intermediate skills should be shifted towards level 3.

The main improvements in the skill levels of the construction industry have been the increase in qualifications at a higher level. Qualifications obtained at Level 4 and above have increased from 11% to 17% over the past ten years. In terms of absolute numbers the figure has nearly doubled, increasing by 83%. This increase is quite significant when set against the increase in the workforce (20%) over the same timeframe. Additionally the share of the workforce with a Level 3 qualification has increased (from 9% to 15%). In absolute numbers this has more than doubled. However, there has been a large decrease in the share of the workforce with an Apprenticeship, although in absolute terms the numbers have only decreased by 17% and as shown earlier they are still the most popular qualification in Northern Ireland's construction workforce. These changes could be attributed to the retirement of workers who had qualified via a traditional training route (Apprenticeships) in conjunction with improvements in the qualifications held by new entrants.

Further analysis of the skill levels shows the differences between manual and non-manual workers.

[33] Leitch Review of Skills, Prosperity for all in the global economy – world class skills. December 2006

Table 5 – Construction Industry Workforce Qualifications in Northern Ireland by Non-Manual and Manual Occupations

	Non-manual	Manual
NVQ level 4 & above	47%	6%
NVQ level 3	12%	16%
Trade Apprenticeships	11%	34%
NVQ level 2	18%	8%
No qualifications	4%	23%

Source: Office for National Statistics, Labour Force Survey

As would be expected the most popular qualification for workers in non-manual occupations is a qualification at Level 4 and above, with nearly half being educated to this level, while a third of the manual workforce have an Apprenticeship. However, the manual workers are far more likely to not have any qualifications than those employed in non-manual occupations.

3.1.4 Occupational Mobility

Mobility within the industry, in particular, occupational mobility is important to consider in the context of trends in the supply of skills, as it potentially leaves additional gaps which new entrants are required to fill.

A survey of construction industry mobility[34] found that two-thirds (66%) of Northern Ireland workers said they had always worked in the same occupational areas as their current job. Where workers had changed trades, they were most likely to have switched from the relatively unskilled position of labourer/general operative, indicating that many workers follow the pattern of starting out in the industry in unskilled positions before progressing to more skilled work.

3.1.5 Migration

Finally, the flow of workers from overseas needs to be considered in terms of the level and type of skills they are bringing to the construction industry in Northern Ireland.

Whilst it is extremely difficult to get a full picture of the extent of these migratory flows we can draw some tentative conclusions about migrant workers in construction, their countries of origin, and the kinds of skills they are bringing with them.

ConstructionSkills research suggests that in June 2009, 12% of employers in Northern Ireland said they employed or had employed in the last six months a worker who was not a UK citizen or passport holder. Whilst this is higher than in December 2008 (10%), it is lower than the findings in June 2008 and November 2007 (20% and 14% respectively). The likelihood of employing non-UK workers was higher in Professional Services firms and larger firms – rising from 5% of small firms (2-9 staff) to 82% of large firms (100 or more staff)[35] .

For the majority (43%) of firms there was no particular reason for employing non-UK workers. When there was a motive it was usually as a response to skills shortages

[34] ConstructionSkills, Workforce Mobility and Skills in the Construction Sector: Northern Ireland Report September 2007

[35] ConstructionSkills, Employer Panel: Employer Attitudes and Motivations to Learning and Training (Waves 6,7,8 and 9), 2007-2009

(29%); non-UK workers having the right skills for the job (14%) and tending to be better motivated (12%).

Attitudes towards employing non-UK workers changed significantly between 2008 and 2009. There has been a large reduction in employers expecting an increase in non-UK workers (down from 59% in June 2008, to 4% in August 2009). Additionally employers who felt that non-UK workers are more highly skilled has halved since December 2008, from 18% to 9%. However, there has been an increase in the proportion of employers who felt that non-UK workers were more motivated (from 42% to 66%).

Evidence from the report's Labour Force Survey analysis states that although there is a reasonably even spread of migrant-dense sectors across the economy, some sectors (for example, construction) have become migrant-dense due to large increases in migrants since 2004. Although there are 28 migrant-dense sectors, there are sizeable concentrations of migrants in several key sectors. For migrants that arrived since 2004, the top five MD sectors include construction where 11% of migrants work. Furthermore, it is suggested that eastern European males made a notable contribution filling labour shortages during the construction boom.

It is difficult to predict the future flows of migrant workers as there are many influencing factors. However, it is anticipated that increasing globalisation of goods and services and the further integration of emerging economies will increase the supply of low skilled workers and overseas production activities will increase the competitive pressures on firms and the indigenous workforce.

Summary Box

The construction industry in Northern Ireland is relatively well catered for in terms of the supply of skilled new entrants via education and training.

Recent statistics show that 1,412 construction apprenticeship starts were recorded in the academic year 2009/2010.

Compared to all industries in Northern Ireland the construction workforce has a significantly higher proportion trained as an Apprentice (28% v 8%).

There have been quite dramatic changes to the qualifications of the construction workforce over the past decade, both proportionately and in terms of absolute numbers there has been a significant increase in higher level qualifications.

Two-thirds of workers in Northern Ireland's construction industry said they had always worked in the same occupational areas as their current job. Where workers had changed trades, they were most likely to have switched from the relatively unskilled position of labourer/general operative.

Migrant workers are involved in every aspect of the construction industry in Northern Ireland, filling the skills and labour gaps at both ends of the skills spectrum.

3.2 What Has Been the Level and Type of Skill Development within the Workforce?

3.2.1 Workforce Training and Development

We have seen above how the UK construction industry's stock of skills (as defined by qualifications) is changing, we now examine other available measures of skills development, notably training activity and participation in training.

This section examines the extent and nature of training and development activity. It discusses off-the-job training (described as that away from the individual's immediate work station) and on-the-job training (described as activity that would be recognised as training by staff rather than 'the sort of learning by experience which could take place all the time'[36]). It also looks at the impact of the recession on training activity. Figures on the numbers of staff trained cover both direct employees as well as self-employed and other staff working for the employer[37].

Two thirds (68%) of establishments across the construction industry in Northern Ireland had funded or arranged training or development for staff during the 12 months to July 2009. This is a much higher share than across the UK as a whole (51%) and is the largest proportion across each of the nations/regions (which vary from 40% to 64%).

Results indicate:-

- Overall more than half of employers in Northern Ireland deliver some off-the-job training (53%), while 37% provide some on-the-job training – respectively equivalent to just over three-quarters (79%) and a half (55%) of those that train.

- Employers reported providing training for approximately 26,656 workers (both direct employees and self-employed / indirect labour).

- The proportion of the workforce trained was relatively low in Northern Ireland (34%) when compared across the UK.

- Establishments had provided an average of 4 days off-the-job training and 7 days on-the-job training per employee.

Whilst the extent of training is considerable it is important to measure the extent to which it will feed into increased qualification attainment. Approximately one in four (39%) employers that train had provided training intended to lead to a nationally recognised qualification. In volume terms, approximately 6,773 staff were training towards a qualification.

Employers that train were asked whether they had used a range of types of training provider and training approaches.

Private providers and consultants are the most commonly used type of provider (56%) followed by TASC (Training and Assessment Services for Construction, CITB-ConstructionSkills Northern Ireland's direct training division) (45%). The results in Northern Ireland differ quite significantly from the rest of the UK, as follows;

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[36] ConstructionSkills, Skills and Training in the Construction Industry 2009
[37] ConstructionSkills, Skills and Training in the Construction Industry 2009

- High use of TASC (Training and Assessment Services for Construction, CITB-ConstructionSkills Northern Ireland's direct training division) (45% of those training) when compared with use of the National Construction College (NCC) in Great Britain among the construction contracting sector (6%)

- Use of FE colleges was high in Northern Ireland (37% of those that train), and lowest in Scotland and the East Midlands (9% and 6% respectively).

- On-the-job demonstration by experienced workers was low in Northern Ireland (41%), compared to the other nations across the UK, where it ranged from 65% to 74%.

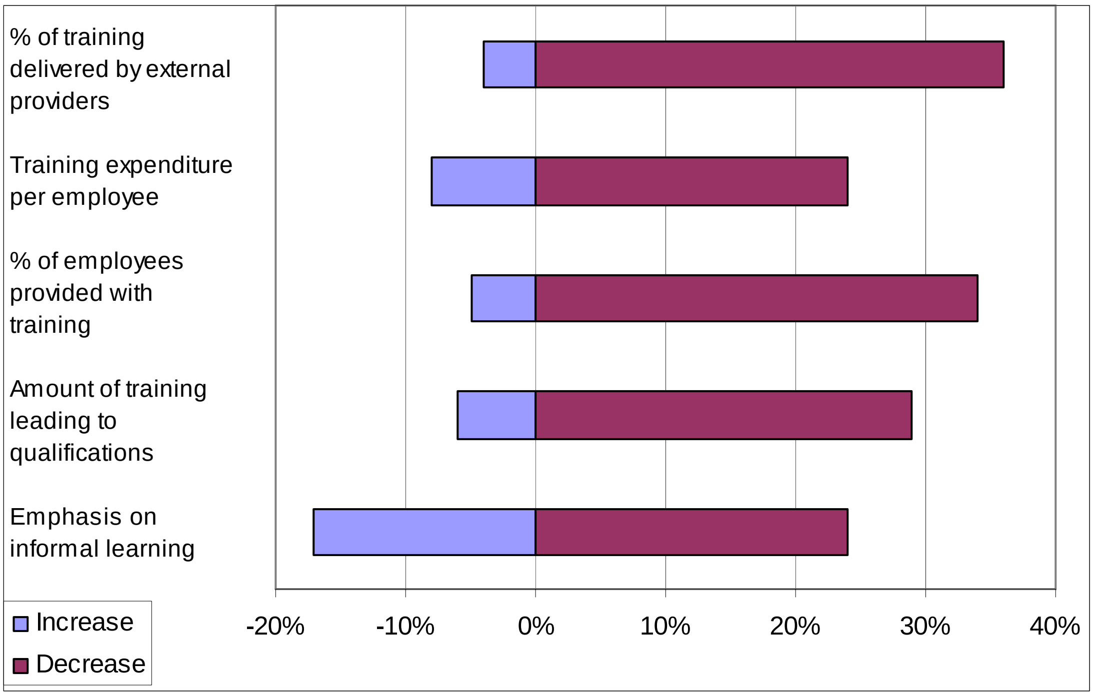
- Employers in Northern Ireland were the least likely to use training provided by manufacturers or suppliers than across the UK (20% v 44% respectively).

3.2.2 The Impact of the Recession on Training Activity

For the most part the recession had made no impact on training activity. However, it is evident for a minority of employers it has had a negative effect, as shown in the following chart.

Over a third (36%) were delivering less training via external providers because of the recession, a similar proportion were training fewer of their staff (34%). Fewer, though still around a quarter, were providing less training leading to qualifications (29%) or were spending less per employee on training (24%).

Chart 9 - The impact of the recession on training



Source: ConstructionSkills, Skills and Training in the Construction Industry 2009

Opinion was more divided as to whether the recession had lead to an increased emphasis on informal learning: 17% thought it had; but 24% felt they now put less emphasis on this, perhaps implying that because of the recession the company put less emphasis on all training, whether formal or informal.

3.2.3 Apprenticeships

Finally, in this section we examine the extent to which employers recruit, employ and offer Apprenticeships, and the reasons for this. We also discuss the likelihood of employers taking on new apprentices in the next 12 months.

Overall 13% of employers had staff currently undertaking Apprenticeships, and a further 10% offer Apprenticeships but did not have anyone currently participating. Employers in Northern Ireland were more likely than the UK average (7%) to have current Apprentices.

As mentioned above the majority of employers do not offer Apprenticeships. The main reasons were because they preferred to recruit those already fully trained/qualified (21%) and that they did not have enough work to be able to take on Apprentices (17%).

Only around one in six employers (16%) expected someone to start an Apprenticeship at their establishment in the next 12 months, and only 7% thought this very likely, highlighting that employers in Northern Ireland's construction industry were more optimistic that it was very likely when compared to the UK average (4%).

Summary Box

Two-thirds of establishments across the construction industry in Northern Ireland had funded or arranged training or development for staff during the 12 months to July 2009. This is a much higher share than across the UK as a whole (51%) and is the largest proportion across each of the nations/regions (which vary from 40% to 64%).

Overall more than half of employers deliver some off-the-job training (53%) while 37% provide some on-the-job training .

Employers reported providing training for approximately 26,656 workers.

Establishments had provided an average of 4 days off-the-job training and 7 days on-the-job training per employee.

One in four employers that train (39%) had provided training intended to lead to a nationally recognised qualification.

High use of TASC (Training and Assessment Services for Construction, CITB-ConstructionSkills Northern Ireland's direct training division) (45% of those training) when compared with use of the National Construction College in Great Britain among the construction contracting sector (6%).

Overall 13% of employers had staff currently undertaking Apprenticeships, and a further 10% offer Apprenticeships but did not have anyone currently participating. Employers in Northern Ireland were more likely than the UK average (7%) to have current Apprentices.

4. Current Mismatches between Demand and Supply for Skills

In an efficient labour market, the skills of the workforce will be sufficient to meet employer needs and the supply of skills is aligned with market demand. If either supply, demand or the matching processes are deficient, several types of mismatches occur. The first is **skill shortages**, which arise when employers find it difficult to fill their vacancies with appropriate skilled applicants. The second mismatch that occurs is **skill gaps**, where the existing workforce are seen to be lacking the skills necessary to meet business need. The third dimension is **unemployment**. The following section will discuss each of these mismatches and their occurrence within Northern Ireland's construction industry.

4.1 Skill Shortages

To understand the context of skill shortages in Northern Ireland's construction industry, it is imperative to look at the recruitment activity of employers[38]. In order to achieve this, employers were asked whether over the last 12 months they had had shortages of skilled workers:

- Only 6% felt that there had been times when they lacked the number of skilled workers they required;

- A third felt that they had been operating at around full capacity given the number of skilled staff they employed;

- Just under two-thirds (61%) had not had enough work for their workforce.

These results differ quite significantly from the UK average, and indicate that Northern Ireland has been particularly affected by the recession in terms of employers being more likely than average to report insufficient levels of work for their workforce for most of the previous 12 months (UK=33%), while employers in Northern Ireland were less likely to say they were operating at full capacity (UK=52%). However, where the picture remains consistent across the UK, is in regard to a lack of skilled workers. Ranging from 6% to 11% across the UK nations, implying that a lack of skilled workers is currently not considered a constraint for employers.

Across the UK construction industry these findings have been replicated in construction trade surveys[39], who have all reported a considerable decrease in skill shortages to a record low. For instance, the recent Construction Products Association Trade Survey (Q3, 2009) reported only 6% of building contractors had difficulties in obtaining the main site trades, a complete contrast to two years earlier when it was 78%.

Just over a quarter of all employers (27%) had *attempted* to recruit skilled staff in the last 12 months, lower than the UK average (36%). While generally speaking in each geographic area approximately the same proportion had attempted to recruit skilled indirect labour as skilled direct employees, in Northern Ireland this was not the case. Very few had attempted to recruit skilled direct labour (5%) compared with almost a quarter (23%) attempting to recruit indirect skilled labour such as the self-employed.

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[38] ConstructionSkills. Skills and Training in the Construction Industry, 2009
[39] Federation of Master Builders. State of Trade Survey, Q2, 2009; RICS Construction Market Survey, Q3, 2009; Construction Products Association. Construction Trade Survey, August 2009;

A fifth of employers trying to recruit skilled staff reported some of these vacancies as being hard-to-fill, equivalent to 5% of all employers experiencing recruitment difficulties for skilled staff in the previous 12 months. These findings are comparable to those from a recent survey in Northern Ireland[40] which reported difficult to fill vacancies as 17% of all vacancies in the construction industry – considerably less than the national average (29%).

4.2 Skill Gaps

The previous section looked at the extent and nature of recruitment difficulties employers were experiencing when taking on skilled staff. This section turns from skills issues when recruiting to skill gaps among the directly employed workforce. Skill gaps are said to exist when an employee or employees are felt by their employer not to be fully proficient at their job. Clearly this potentially covers a wide range of ability from someone who is almost fully proficient to someone who needs to gain a lot more skills and experience to get to this level.

Overall one in ten employers (10%) have staff lacking proficiency, directly comparable to the results across the UK.

The following table shows the proportion of the directly employed workforce lacking skills by region/country. As this highlights direct employees in Northern Ireland described as not being fully proficient were below the national average (3.4% compared to 4.0%)

Table 6 – The proportion of the directly employed workforce lacking skills by region/country

	%
North West	7.0
Wales	6.7
East of England	5.6
Yorkshire and Humberside	4.5
UK	4.0
North East	3.8
South East	3.5
Northern Ireland	**3.4**
Scotland	3.3
London	3.2
East Midlands	2.7
West Midlands	2.5
South West	2.5

Source: ConstructionSkills. Skills and Training in the Construction Industry, 2009

4.2.1 Management and Leadership Skills

In the management and supervisory training requirements survey[41] employers were read a list of potential skill areas where there may be a gap between the skills the business needs and the skills of the existing management team and all employers recognised that some such gaps exist in their management team. Most common are gaps relating to understanding and keeping up to date on legislation, covering Health and Safety, employment and environmental legislation but also understanding of

[40] Department for Employment and Learning. The Northern Ireland Skills Monitoring Survey 2008, November 2009
[41] ConstructionSkills Northern Ireland. Management and Supervisory Training Requirements of the Construction Industry in Northern Ireland, 2007

contracts. Just under two in five of all employers say these are areas where they feel skills and understanding need developing.

Also relatively common, and experienced by around a third of employers, are managerial / supervisory skill gaps relating to IT, financial understanding, risk management, identifying new markets and / or clients and keeping up to date with the latest products and techniques in the industry. These each affect from a quarter to a third of all employers.

Relatively few employers feel there are communication skill gaps (11%) or gaps relating to effective delegation (15%). Similarly relatively few feel they lack skills relating to developing sustainable practices or for managing suppliers and sub-contractors, or their clients (each mentioned by 15% of employers).

The most prevalent skills gaps in terms of the proportion of supervisors and managers affected are: keeping up to date with Health and Safety legislation; legal understanding of contracts; keeping up to date on employment legislation; keeping up to date on environmental legislation; the IT skills of managers and supervisors; and team building and getting staff to share the same goals. Each of these is felt to be lacking or needing development in a fifth to just over a quarter of all managers and supervisors.

When asked what they considered to be the key skills areas that need improving to develop and grow the business in the coming years, the key priority management skill areas relate very much to keeping up to date and improving knowledge of laws and regulations, whether to do with health and safety, environmental or employment legislation, or understanding of contracts. As many as a quarter of employers see improving and keeping up to date on health and safety and environmental legislation and regulations as a priority area for their business. All factors related to legal understanding are more likely to be seen as priorities by contractors than professional service firms, particularly in relation to Health and Safety and environmental legislation.

Other important priorities are improving risk management understanding and practices, estimating project costs accurately, keeping up to date on latest products and techniques in the sector and ensuring that managers and supervisors have the skills to ensure project work is carried out safely. These are each mentioned as a priority by around one in six employers.

Large employers with 100 or more staff have different priorities to smaller firms, and are more likely to mention the following skill areas as important for developing their business: team building (52%), managing time effectively and prioritisation of tasks (45%), maximising productivity (42%), managing suppliers or sub-contractors to ensure that they deliver what is expected (45%), communicating effectively (36%) and ensuring projects run to cost (36%).

4.2.2 Upskilling the Workforce

Two-thirds of employers[42] (67%) felt there were factors likely to lead to changing skills or knowledge needs in the coming 12 months. The factor considered to have the greatest impact on future skill needs was new legislation or regulations (47%). In addition 37% thought the recession would affect their skill needs.

[42] ConstructionSkills. Skills and Training in the Construction Industry, 2009

Employers indicating that there would be factors affecting their skill needs over the next 12 months were asked which single occupation they felt would be most affected by these changes. Managers are the single most likely occupation to be affected by the need to upskill in the coming 12 months; however this at least in part results from the fact that a very large proportion of construction employers have a manager.

4.3 Unemployment

As discussed earlier, the incidence of skill shortages has decreased significantly across the construction industry and is currently not considered a constraint on activity. For the most part, this is due to a reduction in recruitment activity, as a consequence of the recession. In conjunction with this impact, firms have also had to make redundancies.

Recent research[43] found that a third of firms (31%) had to make permanent staff redundant and 40% had to make self-employed or temporary staff redundant due to the recession in the past 12 months. Whilst it is not possible to know whether these workers have been re-employed within the industry, it would seem unlikely as approximately half of firms (48%) also stated that they had to cut back on recruitment. Therefore it can be assumed that those made redundant had either moved into another industry or they were currently unemployed.

It would appear that unemployment was a far more likely scenario based on the latest official claimant count data[44]. In December 2009 approximately 13,500 people were recorded as claiming unemployment related benefits whose last occupation was within the construction industry – an increase of 44% since December 2008.

Further evidence is provided in the table below which shows the current unemployment rate for the construction industry and compares these findings to the overall industry rate across the UK nations.

Table 7 - The unemployment rate in the Construction Industry and All Industries, by nation (UK: 2009).

	Construction Industry	All Industries
England	8.3%	6.9%
Wales	10.3%	7.2%
Scotland	9.1%	5.8%
Northern Ireland	11.8%	5.6%
UK	8.6%	6.8%

Source: Office for National Statistics, Labour Force Survey

As the data highlights the construction industry has been significantly affected by the economic downturn, with the unemployment rate not only higher nationally, compared to the figure for all industries (8.6% v 6.8%), but also higher within each country, notably so in some cases. In particular, the unemployment rate across Northern Ireland's construction industry is twice as high as the rate for all industries within the province.

[43] ConstructionSkills, Employer Panel: Employer Attitudes and Motivations to Learning and Training (Wave 9) November 2009.
[44] Department of Enterprise Trade and Investment Northern Ireland

The impact of the recession across Northern Ireland's construction industry has radically affected the mismatches between demand and supply. While on the one hand skills shortages (and to a lesser extent skill gaps) have decreased dramatically, this has been at the detriment of unemployment. Although skills shortages are currently at an all time low, lessons need to be learnt from the previous recession. One of the biggest risks to the recovery of the construction industry is a shortage of skills as people made redundant seek new careers outside the industry and new entrants unable to get a job, look elsewhere.

Summary Box

Just under two-thirds (61%) of employers reported insufficient levels of work for their workforce for most of the previous 12 months compared to only 6% who felt that there had been times when they lacked the number of skilled workers they required.

Just over a quarter of all employers (27%) had *attempted* to recruit skilled staff in the last 12 months, lower than the UK average (36%).

A fifth of employers trying to recruit skilled staff reported some of these vacancies as being hard-to-fill.

One in ten employers (10%) have staff lacking proficiency, directly comparable to the results across the UK.

The most common skill gaps in management related to understanding and keeping up to date on legislation, covering Health and Safety, employment and environmental legislation but also understanding of contracts. Just under two in five of all employers say these are areas where they feel skills and understanding need developing.

The current unemployment rate across the construction industry in Northern Ireland is 11.8% - twice as high as the rate for all industries within the province.

5. What new and/or changing factors will influence skill/employment demand in the future?

5.1 PESTLE Analysis - Northern Ireland (NI) and UK

Political	**Social**	**Legal – Legislation**
➢ Effect of potential change of government in Westminster upon NI Assembly ➢ National Policy Statements, e.g. Energy. ➢ Housing Policy. ➢ Targeted funding. ➢ Education reform e.g. NVQ – Qualifications and Credit Framework (QCF). ➢ Immigration. ➢ Migration (brain drain). ➢ Devolved policies. ➢ Employment initiatives ➢ Energy security ➢ Stability of NI Assembly	➢ Rising unemployment levels. ➢ Demographics – ageing workforce. ➢ Demographics – potential workforce. ➢ Image of construction industry. ➢ Housing shortage. ➢ Skills of workforce, compared to UK, ROI and overseas. ➢ Immigration/Migration ➢ Changes in working patterns. ➢ Apprenticeships on public contracts	➢ Health & Safety legislation. ➢ Banking legislation – impact on lending, credit insurance, private finance. ➢ Tax changes – CIS and self employed workers in construction. ➢ European legislation.
Economic	**Technological**	**Environmental**
➢ Public deficit – effect on public finance and ability of governments to invest in construction. Disproportionately affecting construction in NI. ➢ Amount of Investment Strategy delivered. ➢ Insurance. ➢ Credit. ➢ Availability of private finance. ➢ Government targets for fiscal stimulus. ➢ High profile/high value projects. ➢ Where will public investment go? ➢ Energy prices. ➢ Carbon trading. ➢ Double Dip recession. ➢ Regional economic factors. ➢ Impact of ROI recession/recovery	➢ Modern methods of construction. ➢ Energy infrastructure. ➢ Low – Zero Carbon technology. ➢ Offsite manufacture. ➢ Intelligent buildings. ➢ Whole life Construction.	➢ Zero carbon o Infrastructure o New housing o Retrofitting ➢ Green jobs. ➢ Code for sustainable houses. ➢ Building Research Establishment Environmental Assessment Method (BREEAM). ➢ Climate change. ➢ Waste (e.g. 75% of construction, demolition and excavation wastes in NI to be recycled /reused by 2020) ➢ 12% of NI energy produced by indigenous renewables by 2012 ➢ Upgrading of existing housing stock

5.2 Macroeconomic Indicators

Table 8 - UK Macroeconomic Indicators

	Actual		Annual percentage change forecast		
	2007	2008	2009	2010	2011
GDP (at constant 2003 market prices)	2.6	0.7	-4.8	0.3	1.8
Household Consumption	5.1	3.9	-2.8	0.8	3.0
Government Consumption	3.3	6.2	3.4	2.3	-0.2
Gross Fixed Investment	7.8	-2.8	-13.1	-1.7	1.9
Bank Base Rate (average for year)	5.5	4.7	0.6	0.9	2.8
CPI (annual)	2.3	3.6	1.5	2.5	1.9

Source: Experian, Nov 2009

The UK economy has, so far, contracted by an incredible 5.8% during this recession. The 2.5% decline in the first quarter of 2009, when the UK economy lost as much ground as the entire 1990s recession, is expected to have been the severest in this cycle with the pace of contraction now set to ease markedly over the rest of this year.

There has been a notable improvement in some indicators which supports the baseline projection that the worst of the downturn is over. Furthermore, subject to how the stock cycle plays out, a modest rise in activity in one of the forthcoming quarters may be possible but unlikely to prove lasting as long as final demand is weak.

Across the UK the outlook remains weak; the recession is far from over. Rising unemployment across all sectors and any further house price declines will weigh heavily on consumer spending. Investment is set to remain subdued in the face of ongoing lending constraints and export markets remain lacklustre.

Given this, the Northern Ireland economy is estimated to have contracted by around 4.7% in 2009 (GVA, 2005 prices)[45], which is comparable to the UK figure. A mild recovery is anticipated to begin in the latter stages of 2010, strengthening from 2011. GVA growth is likely to be just under the 2.0% mark on average, falling short by some margin of long-term trends. These indicators appear to show that the economy is in a period of relative stabilisation after a severe contraction.

Results from the Construction Skills Network[46] and Northern Ireland's Department of Finance and Personnel suggest that the Northern Ireland construction industry has contracted less significantly than the 13% decline in construction output in 2009 across the whole of the UK. Additionally more recent evidence from the third quarter of 2009 indicates a quarter on quarter contraction of 1.1% in construction output[47]. Growth is expected to average 2.4% in 2010-2011 on the back of good growth in the public sectors, however, it can be seen that beyond this there is a large measure of uncertainty. This is shown in the forecast of an average growth in construction output of 1.1% between 2010 and 2014.

[45] Construction Skills Network: Labour Market intelligence Northern Ireland 2010-2014, Jan 2010
[46] The Construction Skills Network is a construction industry demand forecasting model produced by ConstructionSkills and Experian: see www.cskills.org/csn
[47] Department of Finance and Personnel, Northern Ireland Construction Bulletin, 20 Jan 2010 http://www.northernireland.gov.uk/news/news-dfp/news-dfp-20012010-northern-ireland-construction.htm

As the construction industry in Northern Ireland and the UK as a whole begins to emerge from recession it will face a different set of strategic challenges. Jobs, skills and productivity will continue to drive the agenda. However, the strategic challenge of how to achieve this following a deep recession may involve a different journey and external factors will no doubt strongly influence the drivers for change.

5.3 Investment in construction

Politically, the Northern Ireland government will need to examine the impact of any change in government and the subsequent decisions across the UK with regards to public funding and the associated public debt. It is highly unlikely that any future central government will take the risk of running with such a large level of debt and any further stimulus is unlikely to be forthcoming.

The construction industry in Northern Ireland derives comparatively more work from new build and particularly that driven by the public sector than the UK as a whole, thus the details of public expenditure cuts will be of key importance to several sectors and may affect Northern Ireland disproportionately. Current government expenditure is virtually committed until April 2011. It is likely therefore that it will be 2012 before the full force of public capital expenditure cuts will be felt.

In particular, a number of projects are likely to be affected. The Northern Ireland Investment Strategy, with total investment planned to provide £18bn from 2008 to 2018, is thought to be under threat. This is particularly true for the post-2011 phase and for those projects that have not yet reached the invitation to tender stage. The Titanic Quarter is proposed to provide £5bn investment over the next 15 years, but later phases may be at risk if demand remains low. Decent home improvement programmes are likely to suffer for lack of funding. Generally, programme cuts are acknowledged to be likely to affect those with less political value.

However, it is also recognised that there will also be a need to continue to invest in future construction projects. Construction forms a significant ‘enabler’ to other industries and is fundamental to all aspects of daily life, from transport to medical care. Northern Ireland requires investment to have an efficient transport infrastructure, decent homes and a solution to its energy requirements that will meet legislative standards and its population.

This will subsequently have a considerable bearing on the demand for certain types of skills. This is important because while certain sectors within construction have a very similar skills mix (housing, commercial and some repair and maintenance), others have unique skills requirements (large infrastructure and energy projects). Firms will need to be flexible and continue to utilise the diverse approach that the majority of the industry has rapidly adopted during the recession in order to survive.

Economically, the recession has provoked a climate of fiscal constraint, led by tighter lending regulations and a more risk adverse approach to financing from the banking sector.

Stakeholder evidence gathered during the 2009 Construction Skills Network observatory in Northern Ireland report that construction firms and in particular small to medium enterprises (SME’s) are experiencing increased difficulty in gaining access to credit and insurance conditions have tightened. This new financial climate has had the effect of forcing many firms out of business, despite the desire to stimulate the market from a public investment perspective in order to maintain employment levels.

The greatest risk to economic recovery will be a series of increased financial measures which have the affect of choking off a recovery in the private sector. This strategy coupled with a reduction in public investment could generate a 'double dip' recession and negate any chance of slow recovery in the short to medium term.

Table 9 - Economic indicators - Northern Ireland (£ billion, 2005 prices - unless otherwise stated)

Indicators	Actual 2008	Forecast					
		Annual % change, real terms					
		2009	2010	2011	2012	2013	2014
Real household disposable income	20	*4.2*	*0.3*	*1.9*	*1.4*	*1.2*	*1.2*
Household spending	21	*-3.6*	*-1.0*	*1.0*	*1.7*	*1.4*	*1.2*
Debt to income ratio	0.9	*0.3*	*-3.1*	*-6.0*	*-4.0*	*-1.9*	*-0.9*
House prices (£'000, current prices)	212	*-15.0*	*-4.4*	*0.2*	*2.8*	*3.2*	*3.6*
LFS unemployment (millions)	0.04	*50.6*	*8.5*	*-6.9*	*-13.7*	*-14.8*	*-9.9*

Source: ONS, DCLG, Experian

Economic indicators for Northern Ireland suggest that the province will emerge from the recession in late 2010. The total employment in the province is estimated to have fallen by around 3.4% in 2009 and another, smaller, decline is expected in 2010, of around 1%. Trends in employment tend to lag GVA growth or decline, and thus employment is unlikely to start to rise again until towards the end of 2010.The Labour Force Survey (LFS) unemployment rate is forecast to peak at around 7.4% in 2010, a lower rate than the 9.0% likely for the UK as a whole, and subside slowly thereafter.

Growth in real household disposable income is expected to remain positive between now and 2014, but that does not prevent declines in consumer spending in both 2009 and 2010 as consumers cut back and seek to reduce their levels of debt. However, as Northern Ireland has a much lower debt to income ratio than the rest of the UK (0.9 versus 1.7 in 2008) the effects of this retrenchment may be less severe.

In contrast, very strong house price inflation, particularly in 2006 and 2007 has led to a very much faster decline in Northern Ireland than across the UK as a whole and this has the dampening affect of making consumers feel poorer. A return to any significant house price growth in the province is not expected until 2012.

5.4 Long term skills drivers

In the longer term there is a need to reflect on the changing skills needs of the industry in terms of examining the drivers that will promote future skills.

The economic downturn, long term climate change and energy security are all interacting to create the development of a potential new economy which will have an element based on what is being labelled as 'green jobs'.

The legislation to incentivise this transformation is beginning to be seen. The Sustainable Development Strategy for Northern Ireland set out the province's approach and the construction sector will be critical to delivering commitments derived from this approach and ensuring the appropriate skills and capacity will be a prerequisite.

Almost half of CO_2 emissions are connected to the built environment. This means increasing emphasis on built environment based solutions, for example by renovating/retrofitting existing homes and non domestic buildings to be more energy efficient and building renewable power systems. This has the twin benefit of stimulating the economy and helping shape a low-carbon future. Tackling CO_2 in new buildings alone will not provide the required improvement, a major programme of adaptation and refurbishment of existing buildings will also be required.

For construction to be in a position to respond effectively, the industry has to ensure it has the skills to deliver. Understanding and developing a more creative and innovative approach will be one of the means to increasing efficiency. This could generate a further blurring of traditional companies and roles, via diversification in order that the construction industry take advantage of the business opportunities presented during recovery from the recession.

The ultimate impact of an innovative approach will depend upon the inter-relationship and integration of people and skills, products and industry processes in order to maximise industry performance.

At present, across the UK, 12% of all construction activity is offsite manufacturing, requiring ongoing skills links with the manufacturing sector. Offsite construction could increase significantly as the industry moves from recession to recovery as the main aim will be to increase productivity and effectively achieve more with less.

Generally ‘future’ skills are not entirely new skills, in many cases the skills are either an addition to, or amalgam of existing skills. Construction is a vast range of industries and many small firms will not currently require or utilise innovative methods, as the traditional parts of the industry will co-exist alongside the emerging ‘green’ industrial markets. Increasing influence of legislation forcing ‘clients’ to adopt ‘greener’ solutions , believed by some to be likely, will decrease the proportion of the traditional aspect.

Overall, there are some fairly broad observations that can be made, for example future skills will require:

- An understanding of low/zero carbon technologies.
- Appreciation of ‘air tightness’ in buildings.
- Working to reduced tolerances.
- Greater manufacturer input into training.
- Incremental change to the skills of many occupations.
- Transformation of some occupations due to product changes.
- More ‘installer’ type activities.
- Broader range of skills and competencies.
- Ongoing upskilling (continued craft and professional development).
- Cross industry transfer of skills between linked sectors.
- New and more flexible qualifications.
- Consideration of whether government /industry accreditation is required for advice and installation of new products.

In terms of incorporating these activities construction companies are very aware that their businesses are changing, or require long term change to remain competitive and meet forthcoming legislation. New entrants to the industry will need to be ready to anticipate and meet new and dynamic changes, so too will the 75 percent of the UK workforce in 2020 already in work. If the scale of the change to meet new legislation is to be achieved, there will need to be an equally ambitious programme of training and raising awareness for the existing workforce.

The Northern Ireland Assembly has an important role to play in the recovery of the province, particularly in stimulating private sector growth and making best use of public funding as it becomes scarcer. Initiatives such as the Construction Industry Forum (for Northern Ireland) provide opportunities to share best practice and improve efficiency. The collaborative work between employers and devolved government is even more important at present, as stakeholders need to work together for the benefit of Northern Ireland and the construction industry's long term future.

Summary Box

- The NI economy has, so far, contracted by 4.7% during this recession, comparable to the UK figure. Recovery is anticipated to begin in 2010 and give GVA growth of 2.0% on average from 2011.
- Recent evidence suggests that the NI construction industry has contracted less significantly than the 13% decline in construction output across the UK as a whole, with results indicating a quarter on quarter contraction of 1.1% to Q3 2009.
- Politically, there is pressure to address the huge public debt. Though current government expenditure is virtually committed until April 2011, significant cuts in public capital expenditure are almost certain after this point.
- There is a risk of a 'double dip' recession if private sector recovery is stifled in combination with reductions in public investment. Also, any future rise in interest rates, sterling weakness, VAT reversal and wage freezes will continue to promote a further rise in unemployment.
- Low tender submissions on projects to 'win work' and sustain trading may result in further job losses.
- In the longer term there is a need to reflect on the changing skills needs of the industry in terms of examining the drivers that will promote future skills.
- The economic downturn, long term climate change and energy security are all interacting to create the development of a potential new economy which will have an element based on what is being labelled as 'green jobs'.
- Almost half of CO_2 emissions are connected to the built environment, hence increased emphasis on built environment based solutions, by renovating/retrofitting existing homes and non domestic buildings to be more energy efficient and building renewable power systems.
- Currently 12% of all construction activity is manufactured offsite and this requires ongoing skills links with the manufacturing sector.
- Generally 'future' skills are not entirely new skills, in many cases the skills are either an addition to, or amalgam of existing skills.
- Construction is a vast range of industries and many small firms will not currently require or utilise innovative methods, as the traditional parts of the industry will co-exist alongside the emerging 'green' industrial markets.
- Construction companies are very aware that they require long term change to remain competitive and meet forthcoming legislation.
- An ambitious programme of training of the existing workforce will be needed to meet targets from new legislation. This will also have the impact of maximising potential job creation opportunities and the investment in 'green' industrial policy.

6. What is the likely demand for employment/skills in the future?

Short Term: 2010 - 2011
Medium Term: 2012 – 2014
Long Term: 2015 - 2020

6.1 Introduction

Looking to the future it is likely that the factors outlined in the previous section will mean slightly different drivers for employment and skills within the construction industry, within Northern Ireland but also at the UK level. Both settings will be heavily influenced by trends in the UK economy in a wider sense. As such, any view on the future demand for employment and skills needs to consider the general economic and political backdrop.

The main UK version of this report outlined a number of growth scenarios, which have been related to Northern Ireland where feasible.

In 2008 ConstructionSkills commissioned SAMI Consulting to produce a report[48] which:

- Identified key long-term issues and changes which UK construction may encounter
- Assessed their potential impact for employment and skills.

In consultation with a number of construction stakeholders, including those representing Northern Ireland, it developed four distinct scenarios to test against a base case, with each scenario having different assumptions about a range of factors such as GDP growth, construction growth, share of new work against repair and maintenance, productivity growth, and certain construction industry characteristics.

With skills, the scenario implications were influenced by assumptions made around the construction industry characteristics, with energy efficiency, zero carbon and modern methods of construction all noted as having significant potential impact. However, there are also wider drivers for skills that would cut across all of the scenarios, particularly devolved government policies. These policies aim to raise the overall skills profile of the workforce, and will therefore influence demand across all scenarios.

For employment, all scenarios indicated more than 3 million people working in the construction industry across the UK by 2020, as well as variations in the balance between different occupations. This variation in balance between different occupations was influenced by assumptions around industry characteristics and also the relative balance between different industry sectors. However, the report also noted that "a very serious and prolonged economic and financial downturn"[49] could substantially reduce levels of construction industry employment.

A severe economic and financial downturn is indeed what has happened over the last 18 months, having a pronounced effect on the construction industry. Indications are that during 2009, construction output in the UK will drop from its 2008 level of around £111bn (2005 constant price basis) to approximately £97bn (2005 constant

[48] Experian and SAMI Consulting, 2020 Vision – The Future of UK Construction, 2008
[49] Experian and SAMI Consulting, 2020 Vision – The Future of UK Construction, 2008, Page 8.

price basis), a fall of 13%. This obviously has an impact upon employment, with current predictions showing a low point of 2.3 million people employed in the industry in 2011, nearly 400,000 less than 2007 – 2008 levels.

This rapid and severe change needs to be considered when looking at the 2020 Vision report, as the wider political, economic and social environment is significantly different to that when the report was commissioned and produced. As such the core scenario set out for the UK construction industry in the next section seeks to place the 2020 Vision report into the current context, drawing out key issues and where possible, variations that may arise. This revised core scenario is then used to discuss the likely demand for employment and skills through to 2020, noting any evidence for similarities/deviations within Northern Ireland.

6.2 Core Scenario

The analysis carried out in previous sections identified a number of key factors that will influence employment and skills demand. Some of these factors have a significant impact upon assumptions that drive the core scenario, especially economic data.

Our core scenario for the industry assumes that:

- The UK economy will emerge from the technical recession in 2010 followed by a gradual recovery to long term levels of GDP growth of around 2.1% p.a. through to 2020. In Northern Ireland the indication is that 2.0% growth in GVA[50] will occur in 2011 and to 2014 will be likely to be averaging just below this, which may well continue towards 2020.

- UK construction output will start to recover from around 2011, although it will be at a lower level than GDP growth. Construction output is forecast to be at around 1.8% p.a. through to 2020. Northern Ireland's construction output is forecast to be 2.4% between 2010 and 2011 but then fall to give an average of 1.1% between 2010 and 2014.

- At UK level, although repair and maintenance (R&M) work is currently feeling the effect of the recession, in the longer term the overall ratio of new work to R&M will fluctuate around the current level. As such new work will continue to be the main driver of construction output through to 2020. Within Northern Ireland the ration of new work to R&M is around 4:1, much higher than across the UK and the gap is predicted to widen slightly to 2014, with new work annually averaging 1.2% growth versus 0.7% for R&M. This reinforces the importance of new work as a key to survival and growth over the next decade.

- In the UK, housing demand for both public and private sectors recovers, with current forecasts showing private housing output returning to 2007/2008 levels around 2018 - 2019. Northern Ireland's private housing sector is forecast to grow more strongly than any other within construction giving annual average growth of 3.6% from 2010-2014. Public housing growth is considerably less, at 0.6%.

- Across the UK work in the public non housing sector shows no real growth due to restrictions in available public finance (public sector net borrowing,

[50] GDP is only available at UK level; GVA figures sourced from Experian, Nov 2009

forecast to be -£175bn for 2009-2010[51]). This is reflected in Northern Ireland as well by the prediction that the public non-housing sector is projected to decrease annually by 1.4% on average from 2010-2014. Capital spending cuts, particularly beyond 2011 are likely to be severe and wide ranging in their impact, affecting elements of Northern Ireland's Investment Strategy.

- Commercial and industrial new work in the UK, both very badly affected in 2009, will recover through to 2020. However, output levels in 2020 will still be lower than those seen in 2008, therefore there is no real growth. For Northern Ireland, it is predicted that within the commercial sector there will be an initial decline in 2010 but then growth to give an average of 1.0% per annum 2010-2014. Industrial has a fairly small share of work in Northern Ireland, and remains initially buoyant, then drops off by 2014 to give 3.1% annual average growth.

- At a UK level, infrastructure sector work is forecast to grow in the short to medium term and the long term prospects for energy infrastructure look positive with the government commitment to CO_2 targets. This optimistic outlook for the short term is shared in the projections for Northern Ireland but contraction in the medium term gives an annual average growth of only 0.2% 2010-2014. This is due to major projects finishing on-site and the potential postponement of further major projects such as the dualling of the A6 between Londonderry and Dungiven.

The core scenario identifies that the construction industries within the UK as a whole and Northern Ireland are facing severe challenges in the short and medium term, with output likely to recover towards 2020. This is consistent with trends seen during previous recessions in the 1980's and 1990's. Private housing in particular will be a key sector for the industry in Northern Ireland in terms of employment and skills through to 2020.

As the 2020 Vision report points out, forecasting is not an exact science and variations to this core scenario have been considered that would have implications for both employment and skills.

The four significant possible variations to core scenario are envisioned as:

1. **Stronger Recovery:** the UK and consequently Northern Ireland's economy recovers quickly leading to stronger growth mainly from 2014-2020. Improved availability of private finance and a general recovery in consumer confidence leads to a stronger recovery in housing, commercial and non-housing new work sectors. Also public sector net borrowing is less of an issue and Government is able to continue with a spread of investment programmes.
2. **Double Dip Recession:** the opposite to a strong recovery where the fragile economy goes into a further recession. Reductions in public sector investment and private finance still being restricted would impact mainly upon the housing and infrastructure elements of the core scenario. There would be further job losses, the industry would take longer to come out of recession and growth rates would remain low on recovery.
3. **Low Carbon Transition:** significant progress is made to tackle the upgrade of existing housing stock, new schools, new public buildings and all new non-domestic buildings to become zero carbon. Major infrastructure work

[51] http://www.hm-treasury.gov.uk/d/200910forcomp.pdf

progresses leading to significant developments for wind and tidal power combined with upgrading of energy grid and transport systems. The opportunity for innovation and change that this affords has been highlighted in Northern Ireland[52] which makes this and the last scenario an increased possibility.

4. **Modern Methods of Construction:** innovation and productivity drives increasing adoption of changes in working practice across all new build sectors, especially housing. This would be characterised by higher levels of offsite construction work, for example pod construction, panelised systems and the like, along with the introduction of advanced composite building materials. Although predominately driven by new build work, the diffusion of innovation through to repair and maintenance work would follow as skills would be required for ongoing maintenance of new structures. The comparatively high proportion of new build in Northern Ireland would mean this scenario would deliver initial benefits in output.

Further details of how each variation to the core scenario impacts the UK can be found in the main UK Sector Skills Assessment for the Construction Sector Report, published in December 2009.

Having outlined the core scenario for the construction industry, upon which the ConstructionSkills Network forecasts are based, and the forecast for construction output the following sections discuss their implications for employment.

6.3 Long-term forecast for employment in Northern Ireland

Total construction employment in Northern Ireland is forecast to reach around 69,00 by 2014, when including SIC 45 and 74.2, a 2% increase on the 2010 level. In 2014, 64,170 are predicted to be working in SIC 45, whilst 5,710 are expected to be working in SIC 74.2.

The largest occupational group in Northern Ireland continues to be the wood trades and interior fit out one, accounting for 15.7% of total construction employment in the province in 2008, a slight rise on its 15.3% share in 2007. The return in housing activity in 2010 is expected to benefit these trades disproportionately and they are projected to increase their share of total employment to 17.0%.

The strongest growth in employment between 2010 and 2014 among construction-specific occupational categories are expected to be in civil engineering operatives nec* (36%) and plant operatives (19%). It should be noted that a considerable proportion of these operate outside of the infrastructure sector, providing access roads and utilities connections to housing and non–housing building developments, and it is the recovery in the housing, industrial and commercial sectors that will be leading to growth.

For the occupational balance, working with modern methods would require some new skills onsite, more attention to design and improved project management. This would increase the balance of managerial, professional and technical employment, while having a reduction in the amount of skilled trades.

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* not elsewhere classified

[52] Sustainable Development Strategy for Northern Ireland, 2006, p20. Available at: http://www.ofmdfmni.gov.uk/index/economic-policy/economic-policy-sustainable-development.htm

The small annual output growth leads to limited difference in demand between 2010 and 2014, particularly when projected productivity gains are accounted for. This is especially true among construction professionals. Anecdotal evidence also exists of a considerable amount of short-time working in the industry, which means that already existing excess capacity will need to be taken up before employers look to take on new staff as the projected recovery starts to strengthen.

The annual recruitment requirement (ARR) is a gross requirement that takes into account workforce flows into and out of construction due to such factors as movements between industries, migration, sickness, and retirement. However, these flows do not include movements into the industry from training, although robust data on training provision is being developed by ConstructionSkills in partnership with public funding agencies, Further Education, Higher Education and employer representatives. Thus, the ARR provides an indication of the number of new employees that would need to be recruited into construction each year in order to realise forecast output.

The ARR for the 26 occupational groups within Northern Ireland's construction industry between 2010 and 2014 is illustrated in the table. The ARR of 720 is indicative of the average requirements per year for the industry, as based on the output forecasts for the region.

Table 10 - Annual recruitment requirement by occupation - Northern Ireland

Occupation	2010-2014
Senior, executive, and business process managers	80
Construction managers	-
Non-construction professional, technical, IT, other office-based staff	-
Wood trades and interior fit-out	120
Bricklayers	50
Building envelope specialists	-
Painters and decorators	-
Plasterers and dry liners	-
Roofers	-
Floorers	-
Glaziers	-
Specialist building operatives nec*	<50
Scaffolders	60
Plant operatives	100
Plant mechanics/fitters	50
Steel erectors/structural	-
Labourers nec*	130
Electrical trades and installation	-
Plumbing and HVAC Trades	-
Logistics	-
Civil engineering operatives nec*	50
Non–construction operatives	-
Civil engineers	-
Other construction professionals and technical staff	-
Architects	-
Surveyors	60
Total (SIC 45)	**660**
Total (SIC 45 and 74.2)	**720**

Source: CSN, Experian Construction Skills Network 2010

The largest ARRs are expected to be for wood trades and interior fit out, plant operatives, and labourers nec* all with a requirement of 100 or above. It should come as no surprise that the size of the ARR is often a function of the size of the particular occupational category, hence the significant one for wood trades and interior fit out.

Due to the economic downturn, its affects on the construction industry, and the fact that Northern Ireland is a small construction market, many of the occupational ARRs in the province have fallen below 50.

Please note that all of the ARRs presented in this section are employment requirements and not necessarily training requirements. This is because some new entrants to the construction industry, such as skilled migrants or those from other industries where similar skills are already used, will be able to work in the industry without the need for retraining.

6.4 Other key drivers for employment and skills

What is clear is that there will be drivers for skills that relate to other initiatives taken by government (through the Northern Ireland Assembly and also at a UK level), employers and other bodies to raise standards across the workforce. The majority of drivers mentioned have influenced the industry in recent years and this section discusses the probable impacts of ongoing trends.

Health and Safety Law will continue to be a key driver with increasing client awareness of the risks and criminal liabilities that might be incurred as a result of accidents. This means that the safety records of contractors may become a bigger factor in winning contracts while safety by design will be viewed as part of the normal design process. The risks associated with construction sites and environmental decisions, such as those concerning Brownfield developments, will become more stringently regulated.

These trends will increase the need to improve the attitude and understanding of everyone in construction in order to enhance safety awareness and thinking throughout the construction process – design, manufacturing, build, operations and maintenance. While steps are already being made within the industry towards general certification of staff (CSR scheme etc), there is likely to be regulation for increased certification of construction workers to ensure that they have the right safety skills. It is worthwhile to note that it will be the larger new-build construction sites, rather than the smaller renovation or repair and maintenance projects, that will have significantly higher emphasis on safety and hence greater demand for safety training.

Other factors within the core scenario that would further increase demand for higher skill levels are the increasing demand for homes to be built to meet demographic changes, low or zero carbon technology and energy related infrastructure work.

The implications for future skills demands are significant as very small imperfections in construction can have very substantial implications in meeting the energy standards. Therefore there would need to be considerable changes in attitudes towards construction techniques accompanied by an understanding of the impact of actions and inactions by an individual on the final energy certificate. Increasing demand on house builders to reduce the environmental impact of homes, in particular carbon footprints, may force a move to Modern Methods of Construction to assist in the use of better materials and improve the quality of construction, particularly for air tightness and insulation. There will also be demands for new construction skills on-site driven by growth in the use of new equipment such as heat pumps, heat and water recycling and local micro-generation systems.

Summary Box

This section outlined what we see as the core scenario facing the construction industry with possible significant variations that may arise, initially developed for the UK and related to Northern Ireland where feasible and the UK.

Core Scenario for construction industry:

Assumes that:

- UK economy emerges from recession in 2010 followed by a gradual recovery to long term levels of GDP growth of around 2.1% p.a. through to 2020. In Northern Ireland this is likely to be 2.0% growth in GVA between 2011 and to 2014.
- UK construction output will start to recover from around 2011 although slower than GDP growth. In Northern Ireland this looks strong initially but dropping off from 2011.
- New work will continue to be the main driver of output.
- Levels of productivity growth will remain low.
- While housing demand for both public and private sectors recovers in the UK, Northern Ireland's private housing develops while public shows minimal growth.
- Work in the public non housing sector shows no real growth due to restrictions in public finance across the UK, potentially disproportionately affecting Northern Ireland.
- Commercial and industrial new work, both very badly affected in 2009, recovering through to 2020, with the latter showing growth in Northern Ireland to 2014 due to the severity of the recessional impact.
- Infrastructure sector work is forecast to grow in the short to medium term and the long term prospects for energy infrastructure look positive with the government commitment to CO_2 targets. However between 2012-2014 Northern Ireland's sector is projected to decline as public funded work is more uncertain.

Four possible significant variations to this scenario were noted:
1 – Stronger Recovery: where the economy recovers at a quicker pace.
2 – Double Dip Recession: the recession deepens and there are further job losses.
3 – Low Carbon Transition: there is significant progress with upgrading existing housing stock, zero carbon targets apply to a wider range of new build work and there is significant progress with energy infrastructure work.
4 – Modern Methods of Construction: where there is a rapid adoption of innovative working practices as industry looks to improve productivity in a highly competitive environment.

Employment:
Core scenario has distinct phases for overall employment numbers:

- 2010 – 2011, industry still dealing with recession, further job losses then stabilisation. Work in public non-housing and infrastructure sectors important for employment.
- 2012 – 2014, low employment growth as industry comes out of recession. Housing and infrastructure sector work important.
- 2015 – 2020, employment increases to approach 2007 – 2008 peak levels. Housing, infrastructure and repair and maintenance work will be key sectors for employment.

With the variations to the core scenario the double dip recession would mean employment being well below 2007 – 2008 levels. Both the stronger recovery and low carbon transition would see employment rise above the core scenario, however increasing adoption of modern methods of construction could have implications for onsite employment.

Skills:

- There will be increasing demand for higher levels of skill across the industry.
- Skilled trades will remain the dominant grouping for qualifications within the industry.
- Skills relating to development of energy infrastructure and low carbon technology will be strong drivers of demand for both the infrastructure and housing sectors.
- This will cover skilled trades, architects, designers and construction managers.

With the variations to the core scenario, low carbon transition and modern methods of construction will influence demand for the upskilling of existing workers and acquiring new skills to respond to the particular challenges that they raise.

7. The future supply of skills and employment in the construction industry

7.1 Introduction

The suddenness, and relative unexpectedness, of the recent recession (which at the time of writing the UK has yet to officially exit), point to the limitations inherent in any forecast. The major difficulty is forecasting whether we will experience a relatively strong and healthy up turn, or whether the fall-out from the recession and the responses to it will drag down any recovery for years to come, in short whether one is optimistic or pessimistic about the future.

There are some conclusions that can be tentatively drawn from existing authoritative reports, and this section will draw from the Working Futures report produced for the UK Commission for Employment and Skills by the Warwick Institute for Employment Research and Cambridge Econometrics, as well as 2020 Vision – The Future of UK Construction, produced for ConstructionSkills by Experian and SAMI Consulting. Other reports quoted are from the Higher Education Policy Institute, official figures from the Office of National Statistics and Government Actuary Department, as well as ConstructionSkills own figures on training which are the most up to date available.

When forecasting in a fluid and rapidly changing environment such as skills there is sometimes no better substitute than looking at previous, similar, events and making assumptions from what has happened in the past. This section will do this as well, aiming to understand the skills market in the current context and making reference to the last two big recessions in the UK from 1980-82 and 1990-92, while drawing conclusions specifically for Northern Ireland.

The main focus of this section will be the medium term (the next five years up to 2014) and the long term (the next decade up to 2020) due to training in the short term already set in motion.

As discussed in earlier sections, aspects such as the economy, industry, demographics and politics will all have a bearing upon the supply of skills and employment for the construction industry.

7.1.1 The Economy

Section 6 set out the core scenario for the industry through to 2020 and in this vision of the future, the fall out from the recession continues well into the medium term, acting as a continuing brake on construction activity and consequent demand for skills. It predicts that GDP growth is low, and that public debt remains high hampering state spending.

Regardless of when the recession officially ends demand is one of the key drivers for skills and employment supply and it would be safe to say supply, especially in terms of formal training, will remain subdued until well into the medium term.

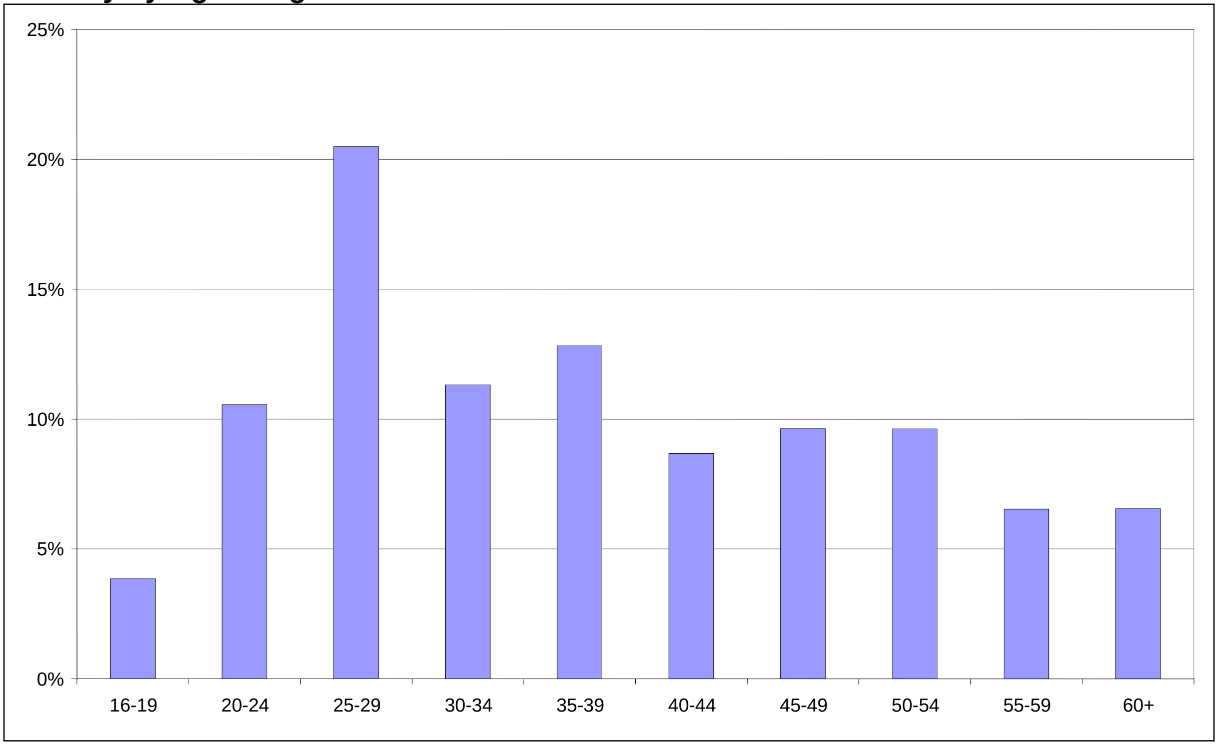
Over the medium to long term things are projected to be more optimistic. The Working Future report[53] predicts output growth, which is consistent with the view taken in the core scenario. So, from 2014 onwards it would seem likely that the supply of skills and employment will begin to increase in response to the rising demand that is expected at that time.

[53] Institute of Employment Research, Working Futures 2007-2017, Warwick University, 2008

7.1.2 The Industry

Looking towards 2020 approximately 14% of the manual construction workforce will reach retirement age (see Chart 10), resulting in a loss of accumulated skills and experience - particularly those involved in the heavier trades and labour.

Chart 10 - Proportion of Manual Workers in Northern Ireland Construction Industry by Age Range – 2009



Office for National Statistics – Labour Force Survey

In normal years this would be more than matched by new recruitment, however, given the current recession and downturn in recruitment unless economic circumstances force later retirement, certain skills will become less available. If reliance is to be put on an ageing workforce, compensatory changes in workload on-site will be necessary.

Chart 10 also demonstrates the lasting impact of previous recession with the dip in the proportion of people in the 30-34 age group reflecting the fall in recruitment for manual occupations that occurred during the last recession. The latest forecast by the Construction Skills Network[54] predicts that this pattern will be played out again in the current recession, with rapidly rising job losses risking rising skills deficits.

The loss of the ageing professional workforce (designers, engineers, technicians) is likely to be less of a problem than that of the labour workforce, as professionals are able, and frequently prefer, to continue working. Indeed the problem may be less a shortage of staff than a need to retrain a group of older professionals who do not have the skills to meet the new needs of the sector. It should also be noted that the construction industry is male dominated in employment terms. Females account for just over 1 in 10 of all manual jobs, and despite attempts by the industry to encourage more female entrants; this is expected to remain the case for the foreseeable future.

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[54] ConstructionSkills and Experian, Construction Skills Network,2009

7.1.3 Demographic data

Northern Ireland's population is expected to grow by over 140,000 between 2008 and 2020 to reach a little under 2 million people. The increase in working age population (16-70) is much lower, however, at a little under 64,000; and when looking specifically at the male working age population (construction being a predominantly male-dominated industry) the increase is 35,000 people between 2008 and 2020, or approximately 3,000 males per annum.

7.1.4 Political Initiatives

The current Northern Ireland Assembly was formed in May 2007; it has authority to make laws and decisions on the role of Northern Ireland government departments. An executive committee brings forward proposals for consideration by the Assembly and sets out a Programme for Government. The current form of the latter runs from 2008-11 and set the context for the bi-annual budget and also the longer term Investment Strategy (ISNI), running through to 2018.

These documents, and in particular the Investment Strategy, are very important in setting the emphasis of publically-driven initiatives. ISNI has designated around £19bn to be spent between 2008 and 2018. This is spread across many projects, but in particular roads, public transport, schools, primary care, hospitals, housing and water have been allocated between £700m-£3.5bn each. It is thought the money associated with post-2011 spending (around two thirds of the total) could at least in some areas be at risk from the well-publicised public spending cuts likely to occur.

In terms of future supply more generally, the education system and certain policies in Northern Ireland will be influenced by legislation at a UK level. The imminent general election will therefore have some impact. However it can be seen through various strategic publications[55,56] that both main political parties acknowledge the link between a strong skills base and a vibrant economy, and are committed to raising skills levels within the workforce.

So whoever is in power in Northern Ireland and in Westminster, raising opportunities for training and learning will be a priority at a time when unemployment levels are likely to be at a peak in the region of 3 million people across the UK.

7.2 Projected potential volumes of people with skills to join the industry

The changes in demand noted earlier will be reflected in the supply of future construction workers. They will require skills that focus more toward assembling manufactured components, utilise computers at each stage of the construction process and have a greater understanding of trades other than their own, in particular how different aspects and components of a finished building will interact.

Having looked at the preceding sections and how skills are likely to change over the course of this forecast, the next question to answer is where the people with these skills are likely to come from. There are three key routes for skilled workers to enter construction:

- After training for a qualification – at both craft and professional levels.
- By migrating from another country.

[55] Department for Business Innovation and Skills, Skills for Growth – the National Skills Strategy, 2009
[56] Conservatives, Building Skills, Transforming Lives A Training and Apprenticeships Revolution, Opportunity Agenda Policy Green Paper No 7. 2008

- By bringing relevant skills from other industries.

For the purposes of this report the last of these will be ignored as it does not contribute to the UK stock of skills, and it will to some extent be off-set by those leaving construction to work in other industries. It is also assumed that those recently made redundant will probably be lost to the industry forever – or at least will need re-training in order to meet the skills demands already discussed. Employers are aware that in the last recession this led to long term skill gaps during the recovery and there is a strong desire to avoid this, however, it is still not clear how many workers will return to the industry and how many will lose their skills or their ties to the world of work.

7.2.1 Craft Training

The main supply of skills has traditionally been via work-based training, and there is no reason to think this will be any different in the future. The largest source of investment in craft training comes from employers, and is closely correlated with levels of employment within the industry and expectations for future work.

According to the Construction Skills Network, construction employment in Northern Ireland in 2014 is forecast to reach 69,880, marginally below the 2008 figure and up 2.0% on the 2010 total. In 2014, 64,170 are predicted to be working in SIC 45, whilst 5,710 are expected to be working in SIC 74.2.

The precise link between employment and training is difficult to calculate, and indeed would vary depending on which point in the economic cycle a measurement is taken. Of course the number of people entering training will not equate to the number of skilled workers available to work in construction. The other two factors to consider are likely achievement rates, and the proportion of completers who stay in construction after qualifying. However using the latest Apprenticeship data as a starting point allows an assumption to be made on the likely supply of skilled workers to Northern Ireland's construction industry.

Recent statistics (2009/2010) show that there were 1,412 starts on an apprenticeship in Northern Ireland. Applying an achievement rate of 54%[57] would make it reasonable to assume therefore, that 762 construction apprentices would successfully qualify.

Having achieved a qualification, a very high proportion of people choose to stay in construction. The Construction Apprentices Survey[58] suggests that some 95% of successful completers stay in the construction industry, mostly in the trade in which they studied. So, using these figures, we can estimate that the supply of skilled workers to the construction industry through the apprenticeship route would be approximately 724. As there has been a significant drop in those undertaking construction apprenticeships in recent years, most likely due to the downturn in the industry, this estimate for new entrants from apprenticeships is based on a much lower intake figure than previous years.

It should also be noted that this figure of 724 skilled workers is likely to be somewhat of an underestimation as anecdotal evidence suggests that many of those who drop out of their apprenticeship before achieving to NVQ L2 still remain working in the industry[59].

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57 CITB-ConstructionSkills Northern Ireland
58 ConstructionSkills, Construction Apprentices Survey, 2003
59 CITB-ConstructionSkills Northern Ireland

Additionally as this forecast is based on apprenticeship data only it does not provide the full picture of the likely supply of skilled workers from across the whole further education training route.

7.2.2 Higher Education

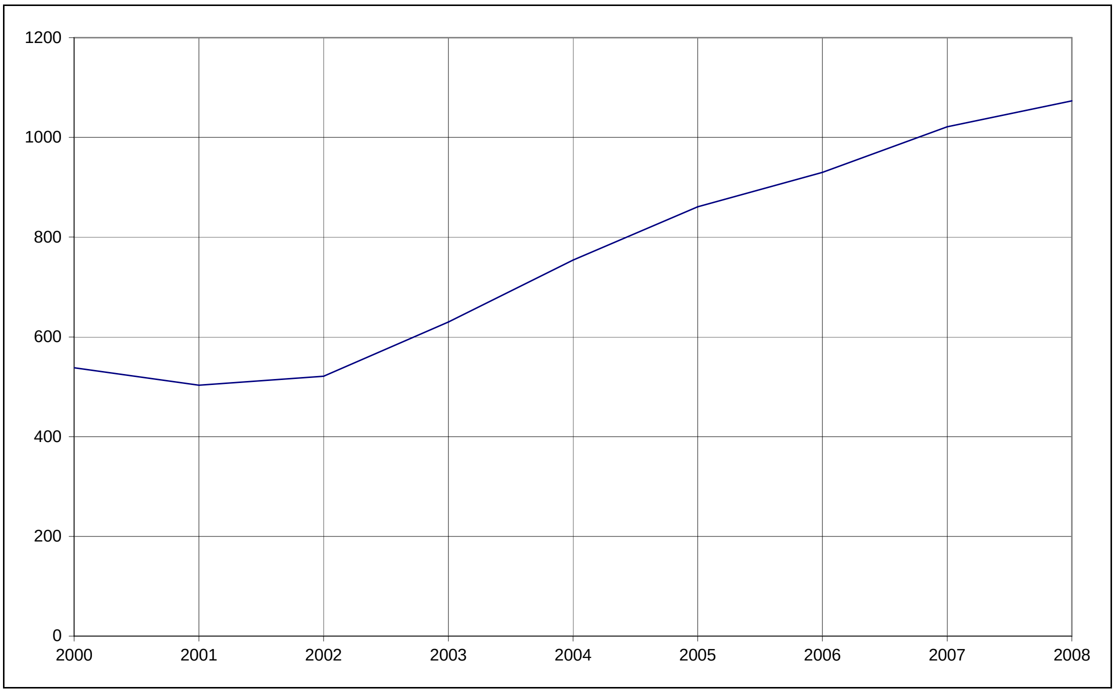
While there is no research looking specifically at the future uptake of Built Environment degree courses in Northern Ireland, The Higher Education Policy Institute have produced a report[60] which looks at the likely demand for degree courses in England across all subjects. Using their methodology and assumptions as a framework, the likely demand for courses in the Built Environment in Northern Ireland can be estimated. While the HEPI report focuses on England, their conclusions and findings are equally applicable to the UK and devolved nations, and the numbers quoted in this report are for Northern Ireland, using the same or similar sources to HEPI.

The HEPI report considers three factors that influence demand for Higher Education – changes in the population from which students are drawn; the ability (in terms of qualifications) of those people to enter higher education; and the willingness (in terms of social background) of this population to participate in higher education. These interact in a complex way with potentially increasing achievement rates and social aspirations working to counteract falling numbers in the crucial 18-20 year old population over the next decade.

The trend in recent years has been one of increasing demand for HE places, despite the introduction of variable fees, influenced largely by increases in the 17 to 30-year-old population. The number of applicants to Built Environment degree courses has increased every year since 2001, with 2003 and 2004 seeing successive increases of around 20% over the previous year in UK domiciled first degree applicants in Northern Ireland.

[60] Higher Education Policy Institute Bahram Bekhradnia and Nick Bailey, Demand for Higher Education to 2029, 2008

Chart 11 - UK Domiciled applicants to Built Environment degree courses in Northern Ireland 2000 – 2008



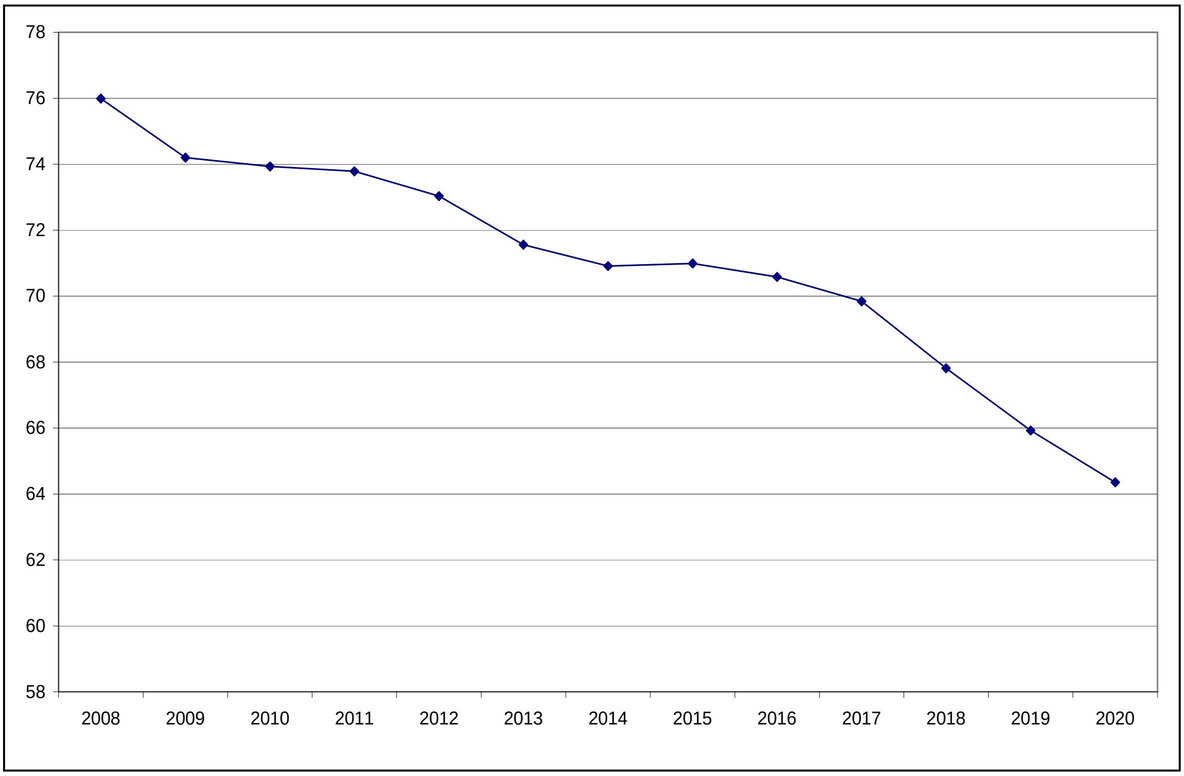
Source: UCAS

For the future HEPI offer two projections, the first based on changes attributable to population-related factors alone – this is the base projection that will be realised if there are no changes in participation patterns – and a high variant, based on males catching up half the difference between the current performance relative to females in full time participation, and also half of those with 7 or more GCSEs who currently fail to achieve a Level 3 qualification doing so in future.

The graph below (Chart 12) shows the way the 18-20 year old population has changed and how it will change in the next 10 years or so. The 18-20 year-old population will decline significantly over the next decade. This will apply a strong downward pressure on the number of applicants to higher education which will only be partially offset by an increase in the number of part time under-graduates in response to the Higher Education Strategy[61]. In passing it is worth mentioning that HEPI do not anticipate that official policies will have a dramatic affect on part-time student numbers as they have been matched by other policies, like the removal of funding for students studying for equivalent and lower qualifications (ELQs) and the imbalance of student support between full time and part time students, “which may make part time study less attractive”. They conclude that there are as yet “no indications so far that policy changes are significantly affecting demand [for part time places]”.

[61]Department for business Innovation and Skills, Higher Ambitions: The Future of Universities in a Knowledge Economy (November 2009).

Chart 12 - Number of 18-20 year olds in the UK population from 2006 to 2020



Source: Government Actuary's Department

While the above graph may seem to point to an impending downturn in the number of HE students, HEPI point to changing social composition of the UK population – fewer people are being born in the lower socio-economic groups and more in the higher groups that traditionally embrace HE – as a cause for optimism.

HEPI calculate that, in the absence of other demographic changes - differential births by different social groups will lead to a 5 per cent increase in the proportion of the under 21 age group participating in higher education by 2020-21.

If the numbers in Higher Education are to increase over the lifetime of this forecast, there would need to be an increase in the proportion of young people taking A levels or Higher exams. Although at present such an increase is not occurring – the proportion of 17-year olds achieving 2 A levels increased rapidly between 1994 and 2002 when the increase levelled out - there are considerable opportunities to increase the HE population by encouraging the large numbers of pupils who do not obtain a Level 3 qualification despite having obtained better than average GCSEs to continue in education. As HEPI point out in England alone if these had stayed on in education and taken A-levels, then that would have increased the number of students by nearly 20 per cent, or nearly 150,000.

Whilst it is clear that not all these people will stay in full-time education, there are real reasons to believe that many will, especially now they are required to continue in post-16 education or training in England. HEPI believe that “This reform, in view of the large numbers at present leaving education at 16, could have the largest impact on HE participation since the introduction of GCSEs in 1988”.

Demography provides the basis for HEPI's assessment of future demand. In the absence of other factors they believe that demand, having peaked in 2010 will fall back below 2007 levels by 2020-21. However, they see strong reasons for believing that participation rates will increase, which will mitigate some, and possibly all, of the declines expected due to demographic changes.

HEPI's base projections (based on demographic factors alone) give a decrease in student numbers between 2007/08 and 2020/21 of 2.5%. Under their high variant scenario (where participation rates increase to their projected maximum) the proportion of all students increases between 2007/08 and 2020/21 by 9%.

In Northern Ireland[62] in 2007/8 there were 801 UK domiciled first-year enrolments for Built Environment degree courses. Applying HEPI's scenario based projections provides an estimate of course enrolments for 2020/21 of 781 (-2.5%) to 873 (+9%).

One factor that had not come into play at the time of HEPI's report was the fact of the recession. Given that current youth unemployment in Northern Ireland has been indicated to be around 20%[63] there will be strong pressures for young people in the short term to remain in education. If this turns out to be the case then this short term outcome would allow time for the other factors mentioned in HEPI's report – socio-economic changes and participation rates – to stabilise and possibly increase participation in HE.

Although there is likely to be moderate growth in Higher Education starts between 2010 and 2020 it is unlikely that the dramatic rises that pre-ceded this period will be repeated. Assuming consistent moderate growth of around 1% a year between 2007 and 2020, this would equate to an additional 110 UK domiciled enrolments in Northern Ireland over the period.

As with Further Education not all these individuals will go on to work in construction after graduating. In fact data from HESA's Graduate Destination Survey[64] suggests that prior to the recession only 21% of UK domiciled, first year first degree students who were available for employment found a job in the construction industry within six months of graduating. Even if the assumption is made that those who were still unemployed after six months ultimately found a career in construction this still equates to a 25% rate for graduates entering construction.

Based on these figures we can estimate that by 2020 around 228 graduates will be available and willing to join the construction industry each year.

7.2.3 Migration

There is limited data availability for migration, and what is available is generally at a UK level. The UK version of this report discussed in detail the skills profile of incoming workers, using information from the Labour Force Survey which is not statistically significant when disaggregated to the comparatively small figures within Northern Ireland. This section aims to display views from recent reports[65] considering the particularities of Northern Ireland[66] and the impact of the recession on migration. Additional data from the UK Border Agency is used to give an indicative figure for likely migration levels for construction in Northern Ireland.

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[62] Higher Education Statistics Agency 2007/8 enrolments, published 2008
[63] Labour Force Survey – Labour Market Statistics, July-Sept 2009, Unemployment by age
[64] Higher Education Statistics Agency, Destinations of Leavers from Higher Education Survey, 2006
[65] Institute of Employment Research, Working Futures 2007-2017, Warwick University, 2008
[66] Long-term International Migration Estimates for Northern Ireland, 2009, NISRA

Figures from the Labour Force Survey indicate that in the last ten years over 81,000 migrant workers entered the UK construction industry, with over half of these coming from just five countries: Poland, Lithuania, South Africa, Romania, and India. However within Northern Ireland this has typically not been the case and generally the Republic of Ireland has proven to be a large contributor.

It has been shown[67] that net-migration in Northern Ireland went from a yearly loss of 1,900 in 2000/1 to a peak influx of 9,800 in 2006/7 before falling back to around 5,700 in 2007/8. This reduction is considered likely to decrease according to certain indicators, in part associated with the recession and to the more stringent points-based immigration policy for workers from outside the EU. This view is supported by the Working Futures report which concludes that the previous high rate of immigration is not expected to be sustainable over the medium term.

However, it is extremely difficult to foresee the future flows of migrant workers, as there are simply so many influencing factors. According to Labour Force Survey[68] data, inflows of migrant workers into the UK construction industry reached a peak in 2006 of over 11,000 workers before declining to just fewer than 5,000 in spring 2009. Over the time frame of this report (up to 2020) it is likely that the flow of migrant workers will probably be somewhere between these two figures, probably closer to the 7,000 average figure seen throughout most of the first years of the 21st century.

The UK version of this report has estimated that around two-thirds of these people will have the skills to work at an acceptable level within the UK construction industry. This equates to a rounded figure of 4,500 per year skilled workers entering the UK construction industry.

A report from the UK Border Agency[69] provides data from the Worker Registration Scheme (WRS). The coverage of the data is those wishing to take up employment in the period of one month from Accession 8 countries. The self-employed are not required to register and so are not included, and there may be a number of workers who do not register with the WRS for other reasons. Also each application represents one job and not one applicant.

For the purposes of providing an estimate, it is considered a fair assumption that the proportion of jobs (and applicants) in each region reflects the wider distribution of migrant workers within the UK. According to the report in Q1 2009 there were 740 registered workers in Northern Ireland, corresponding to 3.5% of the UK total for that period. This figure is across all industry groups (and as noted does not include self-employed). Using this 3.5% proportion to the total UK skilled migrant worker total of 4,500 workers per year between 2010 and 2020 gives 160 workers entering the industry in Northern Ireland.

Having examined the three main sources of skills supply some very tentative estimates can be made about how many skilled workers may be available to join the industry each year by 2020.

From FE the number of people qualifying each year and that will wish to remain in the industry will be in the region of 724.

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[67] Long-term International Migration Estimates for Northern Ireland, 2009, NISRA
[68] Office for National Statistics, Labour Force Survey, Spring 2009
[69] Accession Monitoring Report May 2004-March 2009, UK Border Agency, 2009

From HE the number of people graduating each year and that will wish to make a career in the industry will be in the region of 230

And finally the number of *skilled* migrants entering Northern Ireland each year by 2020 will be in the region of 160, making an annual total of 1,420 skilled people a year. Although this is likely to be significantly underestimated due to the representative nature of the WRS (there is no requirement to register on the scheme) and movement to and from the Republic of Ireland.

7.3 Variations to core scenario

The possible variations to this scenario have already been mentioned. As commented upon in the introduction to this section, one of the key determinants for the future direction of skills supply is the strength of the recovery from the current recession. This section assumes a long recovery with modest annual growth. It assumes a downward trend in the level of inward migration, and a steady increase in those able and willing to attend Higher Education.

The two obvious variations to this scenario occur with stronger or weaker growth to that forecast (perhaps even a swift return into recession). This is key as one of the main drivers for skills supply, especially through Further Education, is the demand for those skills. Although the core scenario anticipates FE training returning to its pre-recession levels by 2020 this depends on confidence in the future of the industry returning – which in the medium term will depend upon Government approach to tackling the financial deficit currently hanging over the economy, whether by cutting back on spending to avoid tax rises, or raising taxes to support spending commitments.

These factors will impact upon migration. At present it appears that many recent migrants are prepared to stay in the UK, and net-migration for Northern Ireland has been strongly positive recently considering previous years. However, if the nations and UK-wide economy falls behind other European countries – particularly those in the east – then it would be reasonable to assume a net outflow to other countries, a significant part of this outflow is likely to be former immigrants returning to their country of origin in the light of more favourable economic conditions there than when they left, further weakening the industry's skills base.

Of all the areas discussed in this report Higher Education is probably the least prone to direct short term fluctuations in the industry and economy. Although this section anticipates a long period of slight growth in the number of UK domiciled, first year, first degree students, this could easily be reversed (a long and slow decline) if the predicted changes in social and educational achievement rates do not come about.

Whatever happens in the medium to long term, the safest assumption to make is that the state of qualifications and skills supply seen before the current recession will not be seen again for a very long time.

Summary Box

- The supply of skilled employees to the construction industry in Northern Ireland is expected to remain subdued over the next five years due to suppressed demand from employers following the recession.

- As well as advances in technology and working practices, the main drivers for skills change within construction are expected to be tougher market forces, increased regulation, more demanding client attitudes and expanded health & safety legislation and regulations.

- It is estimated that training will reach a low point in the region of 1150 VQ starts around 2015, before returning to its pre-recession levels of around 1400 VQ starts by 2020.

- Having achieved a qualification (success rates given as 76%), some 95% of successful completers stay in the construction industry, mostly in the trade in which they studied. So, using these figures, it is estimated that the supply of skilled workers to the construction industry through the Further Education route would be approximately 724 per annum by 2020.

- Although numbers in HE are likely to continue increasing up to 2020, the pace of change will be much slower owing to demographic changes in the core 18-20 year old HE population, which is expected to decline between 2010 and 2020 to 228 graduates.

- It is estimated that around two-thirds of migrant workers have the skills or qualifications to work to an acceptable level within the UK construction industry. Using the assumption of net migration in the region of 7,000 per annum this suggests an average of just over 4,500 additional skilled workers a year joining the industry between 2010 and 2020 across the UK. This gives a tentative estimate of 160 skilled workers per year in Northern Ireland using proportions from Worker Registration Scheme data.

- In conclusion it is expected that around 1,420 skilled people will be available to join the industry each year between 2015 and 2020.

8. Conclusion

Increasing concerns have surfaced in Northern Ireland regarding the future of funding for the Northern Ireland Investment Strategy and it is these concerns that are leading to a fairly modest rate of output growth between 2010 and 2014. In the short term it is the private sectors that are suffering, such as private housing, industrial and commercial, not only in Northern Ireland but across the UK as a whole. As these sectors begin to recover when the economy improves, the need to address ballooning public debt will lead to public expenditure cuts. Unfortunately for Northern Ireland, its economy is more reliant on the public sector than the UK as a whole, as is its construction industry and thus public expenditure cuts are likely to affect the province disproportionately.

It is in this climate of uncertainty that the industry is most at risk, not only in terms of its ability to deliver existing projects, but also in terms of safeguarding jobs and ensuring opportunities exist for the next generation of workers whether apprentices, graduates or migrant workers.

Consequently, the spotlight is very much focussed on how construction can adapt to the changes without undermining potential for future growth. Recovery from previous recessions has been hindered by skills gaps and shortages caused by job losses. Whilst contractors have endeavoured to retain capacity through the current recession, experience suggests that skills gaps and shortages will become evident as growth returns to the sector.

The exodus of skilled workers from the industry through redundancy and retirement will also impact on the ability of the industry to transfer knowledge from experienced workers, potentially further hindering long-term growth.

The construction sector of the future will, despite much forecasted change, share many features with the industry of today. Many site activities, including site preparation will still need to take place, materials (albeit in smaller volumes) will still be stored around sites and construction will require working at height. Staple materials such as wood, steel, glass and plastics will still be in use alongside new composites, and skilled labour will be required to assemble these materials (whether on-site or in a factory environment). However, the methods and technology employed during this construction process will be drastically different.

The specialist skills demanded to meet the high specifications and low energy requirements of future buildings and infrastructure require new levels of expertise in terms of product knowledge, for both professional services and craft trades, and working to more exacting tolerances in terms of timing and quality of construction.

However, new ways of working will not all require totally new skills, but will often be an addition to existing workers skill-sets. Certainly to deliver a more effective, efficient and productive built environment sector, designing and constructing to minimise the use of natural resources, will mean a significant shift in the skills of large parts of the existing workforce. If the construction sector, as proposed, adopts more sustainable working practices backed by new and emerging technologies then this will inevitably result in the erosion and revision of some traditional trade activities with the introduction of a more generalist or multi-skilled approach to the construction process. In this respect, the recession and subsequent recovery offers a real opportunity to redefine a number of existing roles within the industry, as well as presenting additional opportunities in new areas.

Taking these factors into consideration, the industry must not only broaden its horizon with regards current skills needs, but must also lengthen its perspective with regards future needs and possibilities. The reality is that the industry has consistently performed well in recent years, probably better than expected, outperforming its perceived limitations and doing so in spite of weaknesses in skills supply. However, it is extremely doubtful if this approach can sustain further significant growth. The current project-based structure of the industry does not provide an easy business case for training and the extensive use of the self-employed and labour-only sub-contracting presents a significant barrier in any attempt to promote a training culture and qualify the workforce, so there is a need to develop new methods of provision and funding which reflect the reality of the sector.

Driving this agenda forward will require strength and commitment from a multitude of stakeholders and employers at every level. In order to maximise opportunities the construction industry will need to develop not only its technical capability but also its ability to interface with other sectors and work in tandem with multiple agencies. This will require a significant shift in the skills and competence of the existing industry as part of a major process of innovation. In order to establish innovation and integration, the underlying skills and qualification structure needs to be examined - from entry through to high level - to ensure that the skills are backed by qualifications and, where necessary, accreditation and/or certification.

As markets develop, particularly in the adoption of new products and processes, companies - and especially small and micro businesses - will need to gain the leadership and entrepreneurial confidence and competence to discuss green issues with clients and suppliers. It is critical that businesses, across the construction and built environment supply chain, are supported, as appropriate, in relation to people development - this support may be in the form of advice, training and the time and financial resources required. ConstructionSkills together with the built environment Sector Skills Councils is well placed to support this.

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10. Appendix

10.1 ConstructionSkills' footprint, SIC 2003

SIC 45	**Construction**
SIC 45.1	**Site Preparation**
SIC 45.11	Demolition and wrecking of buildings; earth moving
SIC 45.12	Test drilling and boring
SIC 45.2	**Building of complete construction or parts; civil engineering**
SIC 45.21/1	Construction of commercial buildings
SIC 45.21/2	Construction of domestic buildings
SIC 45.21/3	Construction of civil engineering constructions
SIC45.22	Erection of roof covering and frames
SIC 45.23	Construction of motorways, roads, railways, airfields and sport facilities
SIC 45.24	Construction of water projects
SIC 45.25	Other construction work involving special trades
SIC 45.3	**Building Installation**
SIC 45.32	Insulation work activities
SIC 45.34	Other building installation
SIC 45.4	**Building Completion**
SIC 45.41	Plastering
SIC 45.42	Joinery installation
SIC 45.43	Floor and wall covering
SIC 45.44	Painting and glazing
SIC 45.45	Other building completion
SIC 45.5	**Renting of construction or demolition equipment with operator**
SIC 74	**Other Business Activities**
SIC 74.2	**Architectural and engineering activities and related technical consultancy**
SIC 74.20/1	Architectural activities
SIC 74.20/2	Urban planning and landscape architectural activities
SIC 74.20/3	Quantity surveying activities
SIC 74.20/4	Engineering consultative and design activities
SIC 74.20/5	Engineering design activities for industrial process and production
SIC 74.20/6	Engineering related scientific and technical consulting activities
SIC 74.20/9	Other engineering activities

Source: UK Standard Industrial Classification of Economic Activities, 2003, Office for National Statistics.
Note: Asset Skills (the SSC for Property and Facilities Management) has a peripheral interest in SIC 74.2 Architectural and engineering activities and related technical consultancy.
ConstructionSkills shares an interest in SIC 45.31 Installation of electrical wiring and fittings and SIC 45.33 Plumbing with SummitSkills (the SSC for the Mechanical and Electrotechincal Services).

10.2 ConstructionSkills' footprint, SIC 2007

SIC 41	**Construction of Buildings**
41.1	**Development of building projects**
41.10	Development of building projects
41.2	**Construction of residential and non-residential buildings**
41.20	Construction of residential and non-residential buildings
41.20/1	Construction of commercial buildings
41.20/2	Construction of domestic buildings
SIC 42	**Civil Engineering**
42.1	**Construction of roads and railways**
42.11	Construction of roads and motorways
42.12	Construction of railways and underground railways
42.13	Construction of bridges and tunnels
42.2	**Construction of utility projects**
42.21	Construction of utility projects for fluids
42.22	Construction of utility projects for electricity and telecommunications
42.9	**Construction of other civil engineering projects**
42.91	Construction of water projects
42.99	Construction of other civil engineering projects n.e.c.
SIC 43	**Specialised Construction Activities**
43.1	**Demolition and site preparation**
43.11	Demolition
43.12	Site preparation
43.13	Test drilling and boring
43.29	Other construction installation
43.3	**Building completion and finishing**
43.31	Plastering
43.32	Joinery installation
43.33	Floor and wall covering
43.34	Painting and glazing
43.34/1	Painting
43.34/2	Glazing
43.39	Other building completion and finishing
43.9	**Other specialised construction activities n.e.c.**
43.91	Roofing activities
43.99	Other specialised construction activities n.e.c.
43.99/1	Scaffold erection
43.99/9	Specialised construction activities (other than scaffold erection) n.e.c.
SIC 71	**Architectural and Engineering Activities; Technical Testing and**

Analysis

71.1	**Architectural and engineering activities and related technical consultancy**
71.11	Architectural activities
71.11/1	Architectural activities
71.11/2	Urban planning and landscape architectural activities
71.12	Engineering activities and related technical consultancy
71.12/1	Engineering design activities for industrial process and production
71.12/2	Engineering related scientific and technical consulting activities
71.12/9 and	Other engineering activities (not including engineering design for industrial process production or engineering related scientific and technical consulting activities)

SIC 74 Other Professional, Scientific and Technical Activities

74.9	**Other professional, scientific and technical activities n.e.c.**
74.90/1	Environmental consulting activities
74.90/2	Quantity surveying activities

Source: UK Standard Industrial Classification of Economic Activities, 2007 (SIC 2007), Office for National Statistics.
Note: Asset Skills (the SSC for Property and Facilities Management) has a peripheral interest in SIC 71.1 Architectural and engineering activities and related technical consultancy.
ConstructionSkills shares an interest in SIC 43.2 Electrical, plumbing and other construction installation activities with SummitSkills (the SSC for the Mechanical and Electrotechincal Services).

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