

Demand for Skills in Construction to 2020

Final Report



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EXECUTIVE SUMMARY

The construction industry is a vital sector of the Irish economy. It is responsible for providing the housing, social and productive infrastructure required to sustain economic growth and competitiveness and attract foreign direct investment. It is one of the most labour-intensive forms of economic activity and thus is also an important contributor to job creation as well as long-term productivity.

The economy is growing at a solid pace, and the quantity and quality of infrastructure delivered by the construction industry will play an important role in that economic recovery. As well as meeting the needs of a growing and ageing population, the industry will also need to deliver the sophisticated technical and building requirements of the next generation of new enterprises which are emerging on the economic landscape.

The construction industry continues to face significant challenges, however, and this report addresses one of those challenges, the future skills' needs of the industry. With significant numbers having left the sector or emigrated since the start of the recession, there is concern that the industry is lacking the necessary skilled workers in the labour market and amongst those coming out of full-time education and training to meet the demands on it over the medium-term.

ECONOMIC REVIEW AND PROSPECTS

An assessment of the prospects for the economy has become an increasingly difficult task as businesses and industries become more complex. This difficulty reflects two separate issues, firstly the ongoing matter of a reliable measure of the size, value and growth of the economy, and secondly, there are the uncertainties created by Brexit and their potential impacts on confidence and economic growth.

The National Income and Expenditure (NIE) figures released by the Central Statistics Office (CSO) in July 2016 indicate that the Irish economy grew by 26.3 per cent in 2015 in GDP terms, and reached a value of €256 billion, while GNP recorded exceptional growth (18.7%) and reached a value €203 billion. It is generally accepted that these figures do not reflect real economic activity in Ireland in 2015 but instead reflect the much large capital stock now recorded due to the activities of multinational companies with operations in Ireland. Other practices such as the transfer of intellectual patents (IP) and aircraft leasing are also now weighing-in in terms of the distortions that are seen in the 2015 growth figures.

Notwithstanding the exaggerated strong growth in 2015, Quarterly National Account (QNA) data for the first two quarters of 2016 indicate a return to more reasonable levels of growth. On a seasonally adjusted basis, estimates indicate that both GDP and GNP (in volume terms) increased by 0.6 per cent in Q2 2016. Overall, GDP was 4.1 per cent higher in Q2 2016 compared to the same quarter of 2015 while GNP recorded growth of 4.6 per cent year-on-year.

Alternative evidence from domestic indicators, such as trends and developments in the public finances, the labour market, consumption and investment, all point towards a strong recovery in the Irish economy. For example, total domestic demand, which comprises capital formation, government expenditure and personal consumption, increased by 9.1 per cent, year-on-year in Q2 2016.

The UK's decision to leave the European Union is currently the most prevalent risk to growth in the Irish economy. In spite of the uncertainty a number of post-Brexit forecasts predict relatively strong growth for Ireland next year. Both the Central Bank and the ESRI, for example, forecast GDP growth of 4.1 and 4.6 per cent respectively in 2017.

Similarly, the IMF predicts that growth will converge to its estimated potential (about 3% per annum) over the medium term, while noting that crisis legacies in the form of elevated public and private sector debt will leave the economy susceptible to shocks.

CONSTRUCTION – BACK ON THE POLICY AGENDA SINCE 2013

Official statistics indicate that the industry has been in recovery for almost four years, although the total volume of construction output in 2015 was still just half of the corresponding volume in 2007. Much attention has been focused on the construction sector since 2013, although that focus has shifted to housing more recently:

- It commenced with the *2013 Forfás Strategy* which was aimed at accelerating the industry's return to a sustainable growth path and ensuring the sector was in a position to operate competitively in domestic and international markets.
- This was followed in 2014 by the *Construction 2020 Strategy* which aimed at restoring a properly functioning, sustainable and dynamic construction sector, operating at an appropriate level for the size of the economy. As part of *Construction 2020* a new *Social Housing Strategy* was published in November 2014 which provided €3.8 billion for 35,000 new social housing units by 2020. Of these, over 22,000 would be newly built units, 11,000 would be leased and about 2,000 existing dwellings would be refurbished or brought back into use.
- The €42 billion *Capital Investment Plan for 2016-2021*, published in September 2015, set out the last Government's capital allocations for key public sector infrastructure projects, and was expected to support more than 45,000 construction-related jobs.
- Reflecting the ongoing crisis in the housing market, the last Government introduced a package of measures in October 2015 to stabilise residential rents and boost housing supply, especially in Dublin and Cork. These measures included changes to planning guidelines on apartment standards, support from the Irish Strategic Investment Fund (ISIF) for the delivery of housing-enabling infrastructure and measures to maximise the potential of Strategic Development Zones.
- The new Government's *Action Plan for Housing and Homelessness*, published in July 2016, focused again on ramping up the delivery of housing supply across all tenures, via a total planned investment of €5.5 billion over the next five years.
- In addition, the series of *Action Plans for Jobs* since 2012 together with successive Budgets have contained initiatives for the industry.

Despite numerous initiatives in recent years, however, output in the industry remains well below where it should be. A number of obstacles have delayed the industry returning to more normal levels of activity, notably the availability of skills and access to finance.

SIZE OF THE CONSTRUCTION INDUSTRY

The value of construction output was estimated at **€12.7 billion in 2015 or 6.2 per cent of GNP**. These proportions are down from 23 per cent of GNP (20% of GDP) in 2006 and compare with an average for construction across Western Europe of 9.5 per cent of GDP in 2015. CSO official estimates are slightly higher.

An alternative measure of construction output consists of the gross value added (GVA) which measures the real contribution of the construction sector to economic growth as the wages and profits earned by building workers and construction companies. On this basis, the **construction GVA was valued at €6 billion or 3 per cent of GNP in 2015**, compared with less than 2 per cent at the height of the recession and 11 per cent of GNP at the peak.

MEDIUM-TERM PROSPECTS FOR CONSTRUCTION

Construction scenario reflects current policy, allowing the industry to gear up in advance

The output projections presented for construction in the period to 2020 are based on stated Government policy for residential and infrastructure provision. By assessing the required level of construction investment needed to underpin economic growth, population growth and competitiveness in the medium-term, the implications for jobs and skills across the sector can be determined. If the supply side of the economy can respond appropriately, this should also help avoid excessive construction inflation.

Residential construction - addressing the housing supply challenge

Ascertaining the level of residential construction is complex and depends on a number of factors influencing both the demand and supply of housing. On the demand side, buyer confidence, housing affordability, incomes and mortgage rates as well as the availability of mortgage finance will determine an individual's willingness to transact in the market. There are also issues on the supply side such as development viability in some locations, access to finance, especially for smaller housebuilders, and the requirement for high density in some locations, as well as the infrastructural investment required upfront of development on many larger sites.

Establishing the level of supply is further complicated by data problems and by the fact that the published figures for housing completions, which are based on electricity connections, have included dwellings which were either finished or near completion during the boom years and remained unsold due to the financial crisis. This issue is likely to become less prevalent from 2017 onwards.

Potential housing requirement nationally could be as high as 42,000 units per annum

While the various policy documents contain ambitious plans for housing supply, it is not easy to disentangle the level of new house building to be provided from other supply measures such as social housing acquisitions and leasing initiatives.

The potential requirement up to end 2018 is estimated at almost 42,000 units per annum, around 12,500 of which are required in the Dublin market. This is significantly higher than the current level of housebuilding as evident from the commencements and completions data.

If the required supply levels are to be delivered, the industry will need to ensure it has sufficient craftspersons and skilled workers. Residential construction is the most labour-intensive segment of the industry. For the purposes of assessing the impact on construction employment, **the medium-term construction output scenario expects that 14,000 new dwellings will be completed in 2016, with a further ramping up to 20,000 in 2018 and 32,500 by 2020.** This projected level of supply is conditional on the most pressing issues and actions identified in the *Action Plan for Housing and Homelessness* being addressed.

Increased optimism about prospects for private non-residential construction

With a total of 6.76 million square metres of non-residential buildings granted permission in the last five years, there is increasing optimism around the prospects for the non-residential construction sector.

All of the property agents have commented on the **significant quantum of office building currently under construction or planned in Dublin**, with in the region of 702,347 sqm of new supply expected to be delivered over the next three to four years. This compares with an average take-up of 185,806 sqm per annum in the last 10 years.

The retail sector is benefiting from the recovery in consumer spending. With further growth expected in 2016 and 2017, supported by employment and income growth and historically low interest rates, the market is witnessing a strong increase in demand for space from new entrants as well as from existing retailers.

In the tourism area, an estimated 4,200 hotel rooms have been granted planning permission in Dublin and there is growing investment in the hotel sector.

The FDI sector is also generating significant opportunities construction, while estimates suggest that **some 18 companies are either in the process of establishing data centres in Ireland or are significantly expanding existing operations, in an overall investment valued at €3.7 billion.**

Moreover with more than €7 billion in funding to be deployed by the **Ireland Strategic Investment Fund (ISIF)** over the next three to five years, a proportion of these investments is likely to generate demand for new office and industrial space.

However, the main challenge for all private non-residential projects will be putting the financing in place, once planning permission has been received. This could delay the commencement dates on some projects and thus the delivery timeline.

PUBLIC SECTOR CONSTRUCTION

There are growing deficits in public sector infrastructure, following years of reduced investment. **The total Exchequer capital provision represented 2.2 per cent of GNP in 2014 and 1.8 per cent in 2015, compared with 5.6 per cent in 2008.**

The total Exchequer capital provision in the Capital Plan over the period 2016-2021 is €27 billion (€4.5 billion on average per year). This figure has however been somewhat overtaken by events, notably:

- The *Programme for Government* (PfG) states that it intends to protect the existing capital investment plan published by the last Government, which set out €42 billion of investment for the next six years. There is also a commitment to **leverage additional private investment in sectors struggling with large infrastructure deficits, including residential care, housing, regional transport and third level education.**
- The PfG further states that the level of capital investment in transport, education, health and flood defences will be increased post the mid-2017 review of the Capital Plan.
- A further **€4 billion in capital investment up to 2021** is committed in the PfG, of which an estimated €1.5 billion is expected to be allocated to social housing.
- The Mid-Year Expenditure Report (MYER) published by the Department of Public Expenditure and Reform (DPER) in July 2016, in advance of the October Budget, indicates that the **additional cumulative capital expenditure over the period 2017 to 2021 will be €5.1 billion.**

While these commitments are very encouraging, one needs to be mindful of the available fiscal space, which limits the resources available to the Government for additional expenditure and/or tax reductions. The MYER indicates that this additional expenditure is back-end loaded, with over 80% allocated to the 2019-2021 period. Moreover, any decisions in relation to additional capital spending over and above what is agreed in the Capital Plan will be part of the Budget Estimates process and will be announced on Budget day. Accordingly, the €5.1 billion has not been included in the medium-term construction output projections in this report.

The volume of residential renovation has started to recover with interest rates at a low level and following the resumption of house price growth in the second half of 2013. More importantly the renovation sector comprises a large number of small contractors and sole

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traders and is thus heavily reliant on specialised sub-contractor labour, many of whom would have come through the apprenticeship system. Alongside economic recovery and increases in employment and incomes, modest growth is expected in the renovation market over the coming years.

OVERALL CONSTRUCTION PROSPECTS TO 2020

The scenario presented for construction output shows that the value of output recovered in 2015 to around **€12.65 billion** (6.2% of GNP), having reached its lowest value in the current cycle in 2012 (€9.4 billion). The outturn for 2015 is based on 12,666 house completions. For 2016 the forecast is for 14,000 new dwellings, growing to 20,000 units in 2018 and 32,500 in 2020.

The overall volume of construction output is forecast to increase by **12.5 per cent this year, followed by 8.5 per cent in 2017 and 7.1 per cent in 2018. The average annual growth rate in the period 2016-2020 is projected at around 9 per cent.** The volume of construction output by 2020 is forecast to reach €20.2 billion (in 2015 prices), or just over 10% of GNP.

These strong growth rates reflect an industry that had been in recession for six years until 2013 and now needs to catch up with an economy that has expanded strongly in the meantime. With a significant number of projects in the planning pipeline, the construction industry's prospects appear positive, provided the required conditions are in place to facilitate this growth. Critical to advancing these projects will be the availability of skilled construction workers and finance.

KEY RISKS

With regard to the availability of finance, less investment may be forthcoming from UK investment companies and financial institutions, as a result of Brexit, which could jeopardise housing and non-residential development projects relying on non-domestic sources of finance. Other downside risks include:

- Delays in delivering the policy targets and investment provisions in the Capital Plan and the *Action Plan for Housing and Homelessness*;
- Failure of the supply side of the industry to scale up adequately to deliver the projected output level, particularly with regard to skills;
- The return of tender price inflation as the industry expands over the coming years, and labour, materials and land costs come under pressure or become more difficult to source.
- A lack of finance for funding private sector projects.

Notwithstanding the uncertainty over Brexit, there is a substantial volume of work planned by the commercial and industrial sectors in response to the economic recovery and the growth in population. There is also considerable pent-up demand for housing which, if delivered, could see the level of housebuilding by 2020 returning to more normal levels. **The industry is in recovery phase and is on course to experience the most positive outlook for construction in a decade, provided it has the skills available to meet the demands on the industry.**

IMPLICATIONS FOR CONSTRUCTION ENTERPRISES AND SKILLS

The substantial contraction in the output of the construction industry saw a **reduction of around 23 per cent in the number of enterprises in the sector to 47,349 between 2008 and 2014, a loss of 14,500 firms.**

The industry has traditionally been and remains a very fragmented sector, with the **vast majority (c. 70%) of firms in the category 'self-employed with no employees'**, and 98 per cent of all enterprises employing less than 10 employees.

Employment has been hard hit in the wake of the crisis across all construction occupations

The severity of the construction recession saw the numbers working in construction decline by almost 180,000 by Q1 2013 to just 35 per cent of the numbers employed at the peak (2007). Construction recorded the fastest rate of employment growth in the period since, gaining 39,200 jobs by Q2 2016. **There were 136,900 persons directly employed in construction in Q2 2016, 6.8 per cent of the total workforce.** When persons indirectly employed in those firms and services supplying the construction sector are included, the total number employed was 191,700 or 9.5 per cent of the total workforce in Q2 2016.

Across the economy as a whole there are **162,800 persons with construction related occupations**, over 80 per cent of whom work directly in construction.

There were **63,800 qualified skilled craftspersons with construction-related skills in the whole economy in 2015** compared with 121,000 in 2007, with only modest increases recorded in recent years.

There were some **4,400 apprentices across all trades in construction in 2015** compared with 23,700 apprentices in Q4 2007. With the exception of electricians, every apprentice trade experienced losses greater than 70 per cent between the height of the construction boom and the end of 2015.

The level of new apprenticeship registrations declined at an unprecedented rate during the economic recession and has only picked up marginally since, with **1,465 new registrations in the year to September 2016.**

There were around **46,000 self-employed persons** in the construction industry in 2015, which corresponds to 36 per cent of the total number working in the industry. This leaves **81,000 direct employees**, of which an estimated 66,000 to 73,000 work in the private sector.

Applying labour intensity assumptions to the projections for construction output, direct employment in construction is expected to increase from an estimated **137,000 in 2016 to around 213,000 by 2020 or by 76,000.** This would generate direct and indirect employment combined of almost 300,000 by 2020.

There will be significant replacement demand for workers required to do the jobs of individuals who leave the labour market as a result of illness, retirement or death. The cumulative **replacement demand in the period 2016-2020 is estimated at almost 36,000 construction workers**, which is significant in the context of the total expansion demand by 2020.

Based on the expansion (76,000) and replacement demand (36,000), the total labour requirement over the next four years is around 112,000 workers.

A skills shortage could threaten to derail the positive outlook for construction

The re-establishment of a strong skills base across the range of occupational groups is of paramount importance for the construction industry. Moreover, as the overall construction workforce ages, there will be a greater need for new entrants who will need time to acquire the required skills and experience.

There is a particularly pressing issue with specialised tradespersons and the availability of apprenticeships. The combination of technical education and practical experience obtained via the apprenticeship system leaves apprentices well placed to contribute the knowledge, skills and competencies needed to work as a craftsperson in the workplace. There are also

benefits for employers, and the positive prospects for construction should encourage them to participate more in the apprenticeship training system.

Based on the construction output scenario presented in this report, it would seem sensible to plan for an industry that will provide direct employment for around 213,000 persons by 2020, compared with 136,900 in Q2 2016. This amounts to **an additional 76,000 jobs over the next four years**, and would return direct employment in the sector to Q4 2008 levels.

The total skilled craftspersons working in construction in 2015 was 48,900. The **industry will require an additional almost 36,000 skilled craftspersons (including apprentices) by 2020**.

The forecast of the **total requirement for new apprentices in 2020 is 3,840**, over 2,100 above the intake levels for the most recent calendar year (2015).

RECOMMENDATIONS – ENHANCING SKILLS CAPACITY

An enhancement of the skills capacity in the industry is required to ensure the industry can deliver the demands placed on it over the medium-term. Accordingly it is recommended that Government and industry should collaborate to:

1. Establish a Construction Skills Forum within the current National Skill Strategy Group between the Departments of Education and Skills and Jobs, Industry and Innovation, to monitor progress and address barriers in the education and training system which are impeding the delivery of the required skilled employees. This forum would meet quarterly and report annually to work as a feedback mechanism between industry and the education and training system allowing issues to be resolved in partnership.
2. Use this report as a benchmark to constantly monitor progress and year-on-year changes in the composition of skills in the sector, to ensure the education and training system is equipping graduates/employees with the skillsets that will best serve them and the industry.
3. Improve the image of the industry by inspiring young people through extensive communications on the industry's ability to shape Irish society and deliver world class projects, promoting the highest health and safety standards in the EU and through insisting on standards through measures such as the Construction Industry Register Ireland (CIRI). This should involve the development of a national awareness campaign on careers in the construction industry and related fields through the Construction Industry Council and partners.
4. Deliver an international recruitment drive to target the Irish diaspora, to attract skilled construction personnel back to Ireland.
5. Refine apprenticeships and seek to introduce innovative methods of apprenticeship delivery, including the roll out of a shared apprenticeship scheme.
6. Engage with Solas and the Education and Training Board (ETB) network to deliver skills courses nationally that can take people with construction skills off the Live Register within a number of weeks and meet the emerging skills demand as identified by industry.
7. Adapt initiatives such as 'Leadership for Growth' and deliver to a wider cadre of management functions within construction companies in all size cohorts of the sector.
8. Refocus CIF Training and its Construction SME Skillnet on driving new skills around modern building techniques, green construction and professionalism across the industry.

The construction output scenario to 2020 setting out the value and volume of construction output by sector is contained in Tables A to D and Figure A.

TABLE A: VALUE OF CONSTRUCTION OUTPUT IN CURRENT PRICES (€MILLION)

	2012	2013	2014	2015	2016E
Completions (Electricity connections)	8,488	8,301	11,016	12,666	14,000
Commencements (incl. social housing)	5,058	5,212	7,717	8,088	12,000
New Housing	1,980	1,946	2,726	3,332	3,961
Housing RM&I	2,461	2,500	2,630	2,860	3,148
All housing	4,441	4,446	5,356	6,192	7,108
Total Private Non-residential NEW	960	1,290	1,357	1,675	2,382
Total Private Non-residential RM&I	74	79	84	94	104
Total Private Non-residential	1,034	1,369	1,441	1,769	2,486
Total Social Infrastructure NEW	852	949	1,079	1,143	1,278
Total Social Infrastructure RM&I	248	264	285	316	351
Total Social Infrastructure	1,099	1,213	1,364	1,459	1,629
Total Building NEW	3,792	4,185	5,163	6,150	7,621
Total Building RM&I	2,782	2,843	2,999	3,270	3,603
Total All Building	6,574	7,028	8,162	9,420	11,224
Total Civil Engineering NEW	2,243	2,221	2,471	2,642	3,074
Total Civil Engineering RM&I	579	474	515	588	637
Total Civil Engineering	2,822	2,695	2,986	3,230	3,710
Total Construction Output	9,395	9,723	11,147	12,650	14,935
Total GNP (current prices)	142,203	151,899	163,445	202,642	215,143
Construction as % of GNP	6.6%	6.4%	6.8%	6.2%	6.9%

TABLE B: VALUE OF CONSTRUCTION OUTPUT IN CONSTANT 2015 PRICES (€MILLION)

	2012	2013	2014	2015	2016E
	2,337	2,231	2,956	3,332	3,772
Housing RM&I	2,663	2,678	2,735	2,860	3,027
All housing	4,999	4,909	5,691	6,192	6,799
Total Private Non-residential NEW	1,089	1,422	1,424	1,675	2,249
Total Private Non-residential RM&I	81	85	88	94	99
Total Private Non-residential	1,170	1,507	1,512	1,769	2,348
Total Social Infrastructure NEW	967	1,046	1,133	1,143	1,206
Total Social Infrastructure RM&I	274	287	297	316	335
Total Social Infrastructure	1,242	1,333	1,430	1,459	1,540
Total Building NEW	4,393	4,699	5,513	6,150	7,227
Total Building RM&I	3,019	3,051	3,121	3,270	3,461
Total All Building	7,412	7,749	8,634	9,420	10,687
Total Civil Engineering NEW	2,500	2,414	2,582	2,642	2,927
Total Civil Engineering RM&I	641	515	538	588	611
Total Civil Engineering	3,141	2,929	3,120	3,230	3,539
Total Construction Output	10,553	10,679	11,754	12,650	14,226

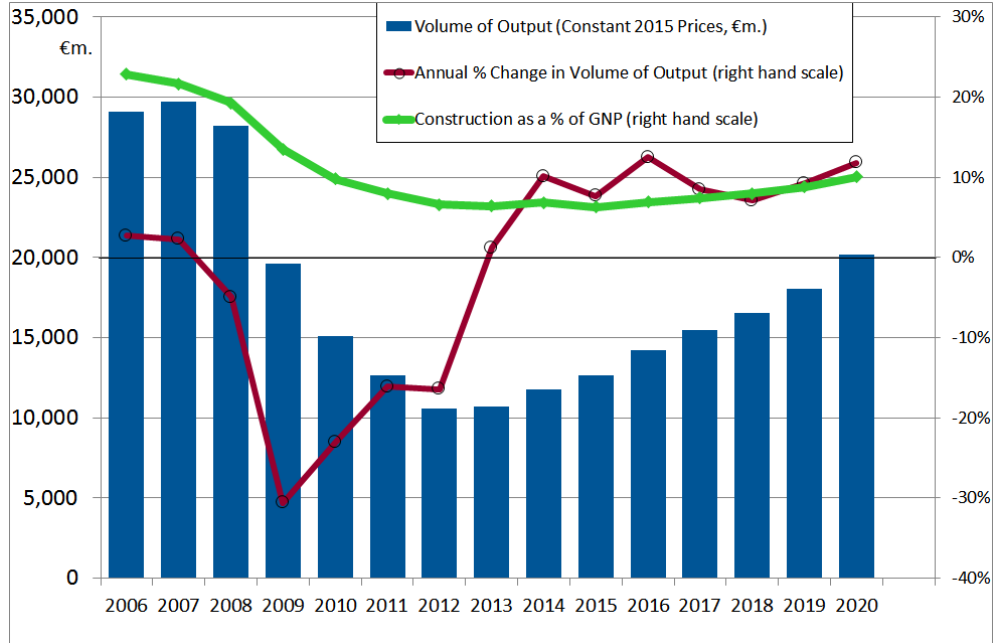
TABLE C: PERCENTAGE CHANGE IN VOLUME OF CONSTRUCTION OUTPUT

	2012	2013	2014	2015	2016E
New Housing	-19.7%	-4.5%	32.5%	12.7%	13.2%
Housing RM&I	-23.2%	0.6%	2.1%	4.5%	5.8%
All Housing	-21.6%	-1.8%	15.9%	8.8%	9.8%
Total Private Non-res. NEW	14.7%	30.6%	0.2%	17.6%	34.3%
Total Private Non-res. RM&I	-19.1%	4.7%	3.5%	6.3%	5.8%
Total Private Non-residential	11.5%	28.8%	0.4%	17.0%	32.7%
Total Social Infrastructure NEW	-20.4%	8.1%	8.3%	0.9%	5.5%
Total Social Infrastructure RM&I	-0.2%	4.7%	3.5%	6.3%	5.8%
Total Social Infrastructure	-16.6%	7.4%	7.3%	2.0%	5.5%
Total Building NEW	-13.4%	7.0%	17.3%	11.6%	17.5%
Total Building RM&I	-21.5%	1.1%	2.3%	4.8%	5.8%
Total All Building	-16.9%	4.6%	11.4%	9.1%	13.5%
Total Civil Engineering NEW	-12.9%	-3.4%	7.0%	2.3%	10.8%
Total Civil Engineering RM&I	-24.1%	-19.6%	4.4%	9.2%	4.0%
Total Civil Engineering	-15.4%	-6.7%	6.5%	3.5%	9.6%
Total Construction Output	-16.5%	1.2%	10.1%	7.6%	12.5%

TABLE D: MEDIUM-TERM PROJECTIONS FOR CONSTRUCTION OUTPUT TO 2020

Constant 2015 Prices €m.	2016E	2017	2018	2019	2020
All Housing	6,799	7,509	8,622	10,175	12,087
Total Private Non-residential	2,348	2,649	2,643	2,532	2,532
Total Social Infrastructure	1,540	1,742	1,734	1,859	1,918
Total All Building	10,687	11,901	12,999	14,566	16,537
Total Civil Engineering	3,539	3,530	3,522	3,480	3,643
Total Construction Output	14,226	15,431	16,522	18,047	20,179
Total Construction Output (current prices)	14,935	17,172	19,581	22,886	27,381
Construction as % of GNP	6.9%	7.5%	8.1%	9.0%	10.3%
	2016E	2017	2018	2019	2020
Projected Percentage Change in Volume of Construction Output					
All Housing	9.8%	10.5%	14.8%	18.0%	18.8%
Total Private Non-residential	32.7%	12.8%	-0.2%	-4.2%	0.0%
Total Social Infrastructure	5.5%	13.1%	-0.5%	7.2%	3.1%
Total All Building	13.5%	11.4%	9.2%	12.1%	13.5%
Total Civil Engineering	9.6%	-0.2%	-0.2%	-1.2%	4.7%
Total Construction Output	12.5%	8.5%	7.1%	9.2%	11.8%

FIGURE A: PROJECTED CONSTRUCTION OUTPUT TO 2020



Source DKM.

1. INTRODUCTION

Construction is a vital sector in any economy with its immediate impacts on economic growth, competitiveness, jobs and productivity. A healthy construction industry requires strong private sector demand supported by a continuous pipeline of public sector infrastructure projects, sustaining jobs right across the sector, in small, medium and large construction firms. It is essential not just for the delivery of physical infrastructure but is also an important driver of competitiveness. High quality infrastructure improves the efficiency of the indigenous enterprise sector and also increases the attractiveness of Ireland as an investment location for foreign direct investment. With the economy recovering at a solid pace, there is strong optimism about the prospects for construction and the quantity and quality of infrastructure provided will play an important role in that recovery.

In 2015 the value of turnover in the construction industry was €12.7 billion, representing 6.2 per cent of economic activity (GNP). There were 136,900 persons directly employed in Q2 2016, 6.8 per cent of the total employed workforce. The severity of the construction recession saw the numbers working in construction decline by almost 180,000 by Q1 2013 to just 35 per cent of the numbers employed at the peak (2007). Although construction recorded the fastest rate of employment growth in the period since, gaining 39,200 jobs, there is real concern that the industry is lacking the necessary skilled workers in the labour market and amongst those coming out of full-time education and training to meet the demands on it over the medium-term. Significant numbers left the sector at the start of the recession, and either upskilled or emigrated, while the unemployment rate, although decreasing, is currently at its highest for persons previously employed in construction.¹ Moreover, as the overall construction workforce ages, there will be a greater need for new entrants who will need time to acquire the requisite skills and experience.

There is a particularly pressing issue with specialised trades persons and the availability of apprenticeships, following a near collapse of apprenticeship registrations from almost 7,000 in 2005 to around 650 per annum in 2010 and 2011. Apprenticeship based occupations are a key component of the skilled construction labour market. The combination of technical education and practical experience obtained via the apprenticeship system leaves apprentices well placed to contribute the knowledge, skills and competencies needed to perform as a craftsperson in the workplace. There are also benefits for employers and the positive prospects for construction should encourage them to participate more in the apprenticeship training system.

Against this backdrop and recognising that the key challenge is to ensure the sector has the requisite skills needed to deliver high quality residential and non-residential buildings and infrastructure, the Construction Industry Federation (CIF) has commissioned DKM Economic Consultants to undertake a study to deliver the following:

- An assessment of the prospects for construction output over the period to 2020, based on policy set out for residential and infrastructure provision; and
- A corresponding set of projections for construction employment at an occupational level, which will allow the industry to gear up its labour and skills resources in advance and thus avoid a repeat of the problems which emerged at the time of the last construction boom.

DKM have prepared this report, in collaboration with the Skills and Labour Market Research Unit (SLMRU) of Solas, which is intended to help ensure that those involved in education and training, as well as policy formulation, are best prepared to respond on the supply side.

¹ National Skills Bulletin, Expert Group on Future Skills Needs, Solas, July 2015, p45.

1.1 REPORT STRUCTURE

The report is laid out as follows:

Section 2 reviews the performance of the Irish economy and considers the prospects and risks over the medium term.

Section 3 presents a policy context for the construction sector together with a sectoral review and outlook for construction output over the period to 2020.

Section 4 sets out the latest data on the enterprise and employment profile of the construction industry, focusing on the occupational composition of the employed construction workforce, including apprenticeships.

Section 5 contains a projection for total construction employment over the forecast period and includes an analysis of the employment projections at an occupational level. The key implications for the sector are also discussed.

The findings, conclusions and recommendations are summarised in the Executive Summary at the start of the report.

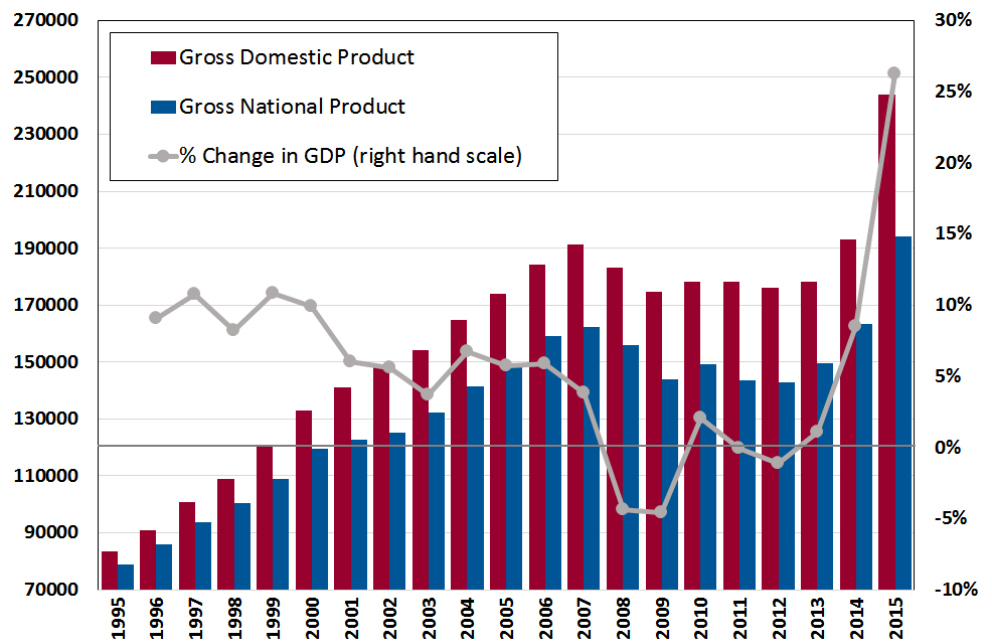
2. ECONOMIC REVIEW AND PROSPECTS

2.1 MEASURING IRISH ECONOMIC ACTIVITY – GDP AND GNP

The economic recovery continues in Ireland at the fastest rate in Europe, having achieved remarkable growth in 2015. Since the recovery commenced in 2013, it has become broad-based although the challenge for Government will be to deliver more balanced regional growth in the future. Although heavily influenced and advanced by external factors, mainly exports, given the openness of the Irish economy, the domestic economy recovered in 2014 for the first time in six years, with components such as consumption expenditure, government expenditure and investment all contributing to growth in that year.

The latest National Income and Expenditure (NIE) figures released by the CSO in July 2016 indicate that the Irish economy grew by 26.3 per cent in 2015 in GDP terms, and reached a value of €256 billion. This outturn compares to a first round estimate of 7.8 per cent provided earlier in the year.

FIGURE 2.1: GDP AND GNP € MILLION CONSTANT 2014 PRICES



Source: CSO

Given the volatility in GDP figures over the past number of quarters, it can be argued that GNP provides a more timely indication of growth within the domestic economy. However, NIE figures indicate that GNP also recorded exceptional growth in 2015 (18.7 per cent), reaching a value €203 billion. The growth outturn of 18.7 per cent compares to the initial forecast earlier in the year of 5.7 per cent.

While GNP has long been used to ascertain domestic growth in the Irish economy the NIE figures for 2015 indicate that this may no longer be possible. Calculating the Balance of Payments has become an increasingly complex task in recent years, partly due to the phenomenon of multinational companies redomiciling to Ireland for tax purposes (redomiciling PLCs). By registering their group headquarters in Ireland, the profits of these multinational corporations accrue to Ireland even though they may conduct little activity in Ireland.

Other practices such as the transfer of intellectual patents (IP) and aircraft leasing are also now weighing-in in terms of the distortions that are seen in the 2015 growth figures. This may go some way to explaining the high level of corporation tax receipts currently reported in the exchequer accounts.

Notwithstanding the exaggerated strong growth in 2015, the Quarterly National Account (QNA) data for the first two quarters of 2016 indicate a return to more reasonable levels of growth in the Irish economy in 2016. On a seasonally adjusted basis, estimates indicate that both GDP and GNP (in volume terms) increased by 0.6 per cent in Q2 2016. Overall, GDP was 4.1 per cent higher in Q2 2016 compared to the same quarter of 2015 while GNP recorded 4.6 per cent year-on-year. Total domestic demand, which comprises capital formation, government expenditure and personal consumption, increased by 9.1 per cent year-on-year.

2.2 MEASURING IRISH ECONOMIC ACTIVITY – DOMESTIC INDICATORS

Given the volatility and revisions in the National Accounts, on both an annual and quarterly basis, it is important to direct focus towards additional indicators, outside of the National Accounts framework, in order to determine the true growth prospects for Ireland in the coming years. Indicators such as tax revenue, the labour market, consumption and investment all continue to indicate a positive trend in Irish growth with little doubt that the Irish economy is continuing on a positive trajectory.

2.2.1 Public Finances

The performance of the Irish public finances in 2015 was very strong and exchequer returns for the first half of 2016 show that this buoyancy has remained, reflecting the continued strength of domestic demand and corporate activity. By August 2016 overall taxation receipts were up over 5.4 per cent on the same time last year. Income tax and VAT receipts experienced an increase of 4.2 and 3.9 per cent respectively over the same period reflecting continued growth in both employment and consumption.

Corporation tax receipts also remain strong with growth of 5.8 per cent recorded in the year to August 2016. Having accounted for 11 per cent of total tax revenue in 2014, corporation tax represented 15 per cent of revenue in 2015. Analysis by the Revenue Commissioners suggests that this increase reflects improvements in trading conditions associated with increased sales of internationally traded products. While corporation tax is considered to be quite volatile in nature, the half-year results for 2016 suggest that its contribution to total tax revenue in 2016 will remain relatively strong.

The economy's capacity to generate the tax revenues needed to fund capital expenditure requires sustainable economic growth. However, the current buoyancy in tax revenues, even if it continues, does not directly imply improved prospects for capital spending. A recommendation from the Irish Fiscal Advisory Council, for example, that Government should apply a tighter stance than required by the fiscal rules to prevent overheating in the economy and to ensure there is scope to increase spending during a future downturn, could constrain capital expenditure.² This recommendation may be even more relevant now given the uncertainties over Brexit.

² Fiscal Assessment Report, Irish Fiscal Advisory Council, June 2016 http://www.fiscalcouncil.ie/wp-content/uploads/2012/01/FAR_Draft_08.06.16_Website_Final.pdf

2.2.2 Labour Market

Perhaps one of the best indicators of economic activity nationwide is labour market developments. This is reflective of successive Action Plans for Jobs, since the Government's *Jobs Initiative* in 2011, which put job creation firmly at the centre of Ireland's economic recovery.

Recent Quarterly National Household Survey (QNHS) figures for Q2 2016 report employment increased on an annual basis by 2.9 per cent compared to the same quarter in 2015. The total level of employment was 2.01 million in Q2 2016, still below the peak level of 2.17 million reached in Q3 2008; however it is clear that the last year has been marked by modest but consistent employment growth.

The most recent Action Plan for Jobs in 2016 aims to have 2.18 million persons at work by 2020, which corresponds to an additional 170,000 net additional jobs compared with current levels. The current number of persons in employment represents an increase of 189,900 since the lowest point of the economic crisis (Q1, 2012). Based on the current level in Q2 2016 and the target for 2020, the average growth in employment is projected to be around 42,500 net additional jobs per annum over the next four years. This figure compares with an annual average increase of almost 45,000 jobs in the last four years.

2.2.3 Consumption

After exceptional volatility over the crisis period the main domestic drivers of growth, namely consumption and investment, became more balanced in 2014. Retail sales, excluding motor trade, increased on an annual basis by just over 6 per cent in 2015 while monthly data for 2016 indicates continued robust growth levels in the sector. In addition to this, personal consumption, which tends to run about 1 per cent below Ireland's growth rate, was 4.5 per cent higher in 2015 suggesting that the real expansion in the economy remains strong.

2.2.4 Investment

Investment, which experienced sharp reductions over the crisis period has begun to show signs of improvement in recent years. This component of the economy includes the value of all investment in building and construction, transport, machinery and equipment. It captures all investment in private and public residential and non-residential building and construction (private and public buildings and civil engineering projects).

Gross fixed capital formation continues to recover, increasing by 33 per cent in 2015 following growth of 18 per cent in 2014. Capital formation which accounts for approximately 35 per cent of domestic demand grew by 38.9 per cent in Q2 2016 based on quarterly data from the CSO. Investment in building and construction is also showing signs of recovery although housing completions in 2015 remain at half of that required to meet average domestic demand of 25,000 units per annum (Duffy, Byrne, FitzGerald, 2014), while the number of residential units commenced in 2015 was even lower at 8,088.

Investment in machinery and equipment, which is influenced by many of the same factors that underpin construction investment, is also influenced by aircraft purchases and the acquisitions of intellectual property rights and thus experienced growth of 4.8 per cent in 2015.

2.3 CHALLENGES AND RISKS

There are a number of downside risks currently facing the Irish economy. Notably, many of these challenges are of an international nature and hence the difficulty in determining the true effect on the economy as a whole.

2.3.1 Inflation

Inflation remains stubbornly low in both the Irish and global context with a persistent threat of deflation across the Euro Area and in several Member States. In Ireland there has been a diverging trend in the evolution of prices in the goods and services components since 2014. The goods component in particular has acted as a drag on overall inflation. This has, in part, been due to lower commodity prices as a result of lower world demand. Given the extent of interest rate reductions and the scale of quantitative easing at a European level, it is difficult to ascertain what more can be done at this juncture to achieve the 2 per cent inflation target, set by the European Central Bank, in a more timely fashion.

2.3.2 Brexit

It is widely accepted that the Brexit decision on June 23 to leave the European Union will lead to predominantly negative consequences for many aspects of the Irish economy in both the short- and medium-term.

In the short-run the most significant effect continues to be the increased exchange rate volatility due to capital leaving the UK driven by investor uncertainty. In 2015, the Euro depreciated against Sterling, largely as a result of the European Central Bank's quantitative easing program. This gave Irish exporters a significant competitive advantage in the UK. More recently however, the Euro has appreciated against Sterling driven mainly by capital outflows surrounding Brexit uncertainty which appears to have already caused a decline in trade between Ireland and the UK.

One development in the UK has been the notable volatility in the manufacturing and services' Purchasing Managers' Indices (PMIs) in the UK which fell sharply in July to 47.7 (its lowest level since the 'Great Financial Crisis') from 52.4 in June. Since then the Index has rebounded from the seven year low recording a reading of 52.9 in August.

In the medium- to long-term it is likely there will be further adverse effects on components such as trade and investment. In the Economic and Social Research Institute (ESRI) report for the Department of Finance, which examined the potential implications of Brexit (Barrett et. al. 2015), it was suggested that Brexit could significantly reduce bilateral trade flows by up to 20 per cent between Ireland and the UK. However, until exit negotiations commence and their terms are known it is difficult to quantify the true impact Brexit will have on trade between the two economies.

Most recent trade statistics from the CSO suggest a slowdown in the value of goods exports and imports in recent months. The reduction in goods exports in particular is partially a result of the relative appreciation of the Euro against Sterling since the start of the year. On the services side of the market, NIE figures for 2015 suggest that net exports increased by 102 per cent in the year to 2015. Again, these figures are largely influenced by the issues outlined in Section 2.1 and thus contributed substantially to the dramatic increase in GDP recorded for the year. Net exports declined in Q2 2016 compared with Q1 2016 by 31.4 per cent with the import increase of 11.8 per cent outpacing the change in exports which were broadly unchanged at -0.1 per cent.

There are also some potential benefits for the Irish economy from Brexit. Most notable is that Foreign Direct Investment previously earmarked for the UK may seek alternative locations and Ireland should be well placed to win its share. This benefit however is likely to be small and may be undercut by Britain in the future if the decision is taken to reduce corporation tax in line with that available in Ireland.

It must be noted that until Article 50 is invoked by the UK Prime Minister there is no indication of what form negotiations between the UK and Europe will take. Until such a time as negotiations begin, Ireland, and indeed the UK and EU, will remain in a state of uncertainty regarding the medium- to long-term implications of this decision.

2.3.3 Global Growth

The International Monetary Fund (IMF) cut its forecasts for global growth in 2016 and 2017 in light of the uncertainty created by the UK's decision to leave the EU. The July World Economic Outlook revised downward global economic growth by 0.1 percentage points in 2016 and 2017 relative to the IMF's April Forecast. The IMF also calculated global forecasts on the back of the Brexit vote. In a downside scenario, with tighter financial conditions and weaker consumer confidence, they envision a further slowdown of global growth this year and next. In a second, severe scenario with intensified financial stress, the global economy would experience a more significant slowdown through 2017.

In addition to the uncertainty surrounding Brexit there are a number of other external and downside risks facing the Irish economy. Weakening growth and financial vulnerabilities in China continue to be a substantial source of risk. The ECB highlight the main risk to the Euro Area of an economic slowdown in China - falling exports, capital outflows and exchange rate fluctuations (European Central Bank, 2015). In particular, it fears that the health of the Chinese stock market could impact markets in the Euro Area through the effects on global confidence.

2.4 MEDIUM-TERM ECONOMIC OUTLOOK

The Central Bank of Ireland's third Quarterly Bulletin in 2016 contained the first post-Brexit forecast for the Irish economy. It forecasts that GDP will grow by 4.9 per cent in 2016 and 3.6 per cent in 2017 representing a cut of 0.2 and 0.6 per cent respectively in each year from their previous forecast. Domestic Demand is also forecast to grow by close to 4 per cent in 2016, slowing to 3 per cent in 2017. This slowdown in demand is reflective of a projected negative impact from Brexit-related factors. In spite of these downward revisions and the uncertainty arising from the Brexit vote, the Central Bank maintains a broadly favourable outlook for the Irish economy in the short-run, with unemployment set to continue to fall further.

The IMF reiterated the positive trend in Ireland's economic growth through high frequency indicators such as solid job creation and buoyant revenues. Taking into account negative spillovers, namely as a result of the UK vote to leave the EU, the IMF forecast that real GDP growth will decline to just below 5 per cent in 2016 and converge to its estimated potential (about 3 per cent per annum) over the medium term. This growth is expected to come on the back of more moderate export growth and investment activity.

Pre-Brexit forecasts provided by the Department of Finance anticipate robust growth in all areas of the economy through to 2021 (Table 2.1)³. A post-Brexit statement from the

³ Updated macroeconomic projections will not be provided by the Department of Finance until Budget 2017 in October 2016.

Minister for Finance has indicated that growth next year could slow to 3.4 per cent compared with 3.9 per cent below. An OECD report from June 2016 also anticipates strong growth in 2016 and 2017 on the back of solid exports and business investment (OECD, 2016). Activity in the domestic economy is also acknowledged and is expected to remain firm in line with steady employment growth.

Reports on the implications of Brexit are mixed and while the shape of the agreement is still unknown some publications indicate the following:

- Estimates in the Governments Stability Programme Update⁴ using the ESRI HERMES model suggest that a 1 per cent reduction in UK GDP would reduce Irish GDP by approximately 0.2 per cent, relative to baseline, over two years. This implies a possible fall in Irish GDP relative to baseline in the range of 0.5 to 1.2 per cent based on Treasury and NIESR estimates.
- The Central Bank of Ireland provides an estimate of potential short-term impacts of Brexit on growth in Ireland in their Quarterly Bulletin No. 3 for 2016. In 2017 they envisage a reduction in GDP growth of 0.6 percentage points. Trade (exports plus imports) is forecast to be reduced by 1.9 per cent and investment is expected to fall by 0.5 per cent.
- The ESRI produced their first post-Brexit short-term forecast in the autumn 2016 Quarterly Economic Commentary. They estimate that GDP will grow by 4.3 and 3.8 per cent in 2016 and 2017 respectively. This represents a reduction of 0.3 and 0.4 percentage points respectively on their pre-Brexit forecast for GDP. Forecasts for GNP have also been reduced by 0.7 percentage points in 2016 and 0.8 percentage points in 2017.

TABLE 2.1: DEPARTMENT OF FINANCE FORECASTS JUNE 2016

	2015*	2016	2017	2018	2019	2020	2021
Nominal GDP (€m)	255,815	275,257	289,570	304,918	318,944	332,977	346,962
Volume % changes year-on-year							
GDP	26.3	4.9	3.9	3.9	3.3	3.1	2.9
GNP	18.7	4.1	3.7	3.7	2.8	2.6	2.4
Consumption	4.5	3.9	2.7	2.4	2.0	1.8	1.6
Government	1.1	1.5	1.6	1.3	1.0	1.0	1.0
Investment	32.7	13.5	7.0	4.8	4.7	3.9	3.8
Exports	34.4	8.0	5.5	5.1	4.5	4.3	4.2
Imports	21.7	9.0	5.8	4.6	4.3	4.0	4.0
Employment	2.3	2.6	2.3	2.3	1.7	1.6	1.4
Unemployment (%)	8.7	8.4	7.8	7.0	6.6	6.3	6.0

Source: Department of Finance, Stability Programme Update, April 2016.

*2015 figures are the CSO Year 2015 results in current prices; data for other years are derived using the nominal GDP annual per cent changes in the SPU for 2016-2021 (page 7); the unemployment rate is as of Q4'15 QNHS; and employment data shows the Q4'15 YoY percentage change as per the QNHS.

2.5 CONCLUSIONS

In spite of these direct (Brexit) and indirect (China and emerging markets) risks the Irish economy continues to show strong signs of recovery in 2016 and 2017. Post-Brexit forecasts from the Central Bank of Ireland and the IMF have been bolstered by the strength of high frequency data such as employment and consumption – both of which reinforce a return to domestically driven economic growth.

⁴ See http://www.finance.gov.ie/sites/default/files/SPU_FINAL_post_Oireachtas_0.pdf.

Notwithstanding the uncertainty surrounding the UK's decision to exit the European Union and excluding the excessive GDP and GNP figures recorded in 2015, it would appear that economic growth will remain positive into the medium term. But there is no room for complacency, and as the IMF concluded, the Irish economic recovery is incomplete and has yet to benefit parts of the population, while crisis legacies in the form of elevated public and private sector debt will leave the economy susceptible to shocks.

3 CONSTRUCTION REVIEW AND PROSPECTS

3.1 CONSTRUCTION POLICY CONTEXT

The construction industry is a significant sector of the Irish economy. It is responsible for providing the housing, social and productive infrastructure required to sustain economic growth and competitiveness and attract foreign direct investment. It is one of the most labour-intensive forms of economic activity and thus is also an important contributor to job creation as well as long-term productivity. With the economic recovery underway, the industry will need to ensure it is well placed to meet the needs of a growing and ageing population and deliver the sophisticated technical and building requirements of the next generation of new enterprises which are emerging on the economic landscape.

Construction is back on the policy agenda since 2013

According to official statistics, there has been a sustained improvement in activity in the construction industry since early 2013. On this basis the industry has been in recovery for almost four years, although the reality on the ground may be somewhat different. Much attention has been focused on the sector in this intervening period. It commenced with the *2013 Forfás Strategy*⁵ which contained a set of actions aimed at accelerating the industry's return to a sustainable growth path and ensuring the sector was in a position to operate competitively in domestic and international markets.

This was followed in 2014 by the *Construction 2020 Strategy*⁶ which aimed at restoring a properly functioning, sustainable and dynamic construction sector, operating at an appropriate level for the size of the economy. Among the areas addressed in the strategy were the housing and commercial property sectors, planning issues, access to finance, education and training for the sector, competitiveness, innovation and internationalisation. The Minister for Public Expenditure and Reform at the time also published the €42 billion *Capital Investment Plan for 2016-2021*, which set out the Government's capital allocations for key public sector infrastructure projects. The plan was expected to support more than 45,000 construction-related jobs. This figure is now expected to be higher, following the additional €4 billion in cumulative exchequer capital expenditure over the period 2017 to 2021 which was provided in the new *Programme for Government*. In fact, the forthcoming Budget for 2017 is expected to deliver €5.1 billion of additional capital expenditure over the next five years. Moreover, a mid-term review of the Capital Plan in mid-2017 is expected to further increase the level of capital investment in transport, broadband, education, health and flood defences.

More recently the attention has shifted to housing, reflecting the current crisis in a market, characterised by serious supply constraints in urban areas, notwithstanding evidence of significant pent-up demand and rents which are back to boom time levels. There is the escalating issue of homelessness and significant legacy issues, notably a household sector with significant outstanding mortgage debt, which is amongst the highest in the euro area.⁷

⁵ Ireland's Construction Sector: Outlook and Strategic Plan to 2015, Forfás 2013, available at http://www.forfas.ie/media/19072013-Irelands_Construction_Sector-Publication.pdf

⁶ Construction 2020: A Strategy for a Renewed Construction Sector, May 2014, available at <http://www.merrionstreet.ie/en/wp-content/uploads/2014/05/Construction-Strategy-14-May-20141.pdf>

⁷ Irish households were the fourth most indebted in the European Union in Q1 2016, according to data from the Central Bank of Ireland. Household debt as a proportion of disposable income was 149.4 per cent.

As part of *Construction 2020* a new *Social Housing Strategy* was published in November 2014⁸ which provided €3.8 billion for 35,000 new social housing units by 2020. Of these, over 22,000 would be newly built units, 11,000 would be leased and about 2,000 existing dwellings would be refurbished or brought back into use. The Strategy contained a range of measures, including a commitment to reduce the social housing waiting lists by 25 per cent nationally by 2017 based on the most recent housing need assessment report.⁹ It set out a multi-annual approach to underpin the delivery requirements over two phases:

- ✓ Phase 1 sets a target of 18,000 additional social housing units and 32,000 social rented units by end 2017.
- ✓ Phase 2 sets a target of 17,000 additional social housing units and 43,000 social rented units by end 2020

Addressing the housing supply challenge

However, the housing supply issue remains the single most important challenge since 2014. As a result, the last Government introduced a package of measures in October 2015¹⁰ to stabilise residential rents and boost housing supply, especially in the locations of greatest need, notably Dublin and Cork. These measures included changes to planning guidelines on apartment standards, support from the Irish Strategic Investment Fund (ISIF) for the delivery of housing-enabling infrastructure and measures to maximise the potential of Strategic Development Zones.

In response to the continued lack of housing supply, the new *Programme for Government* in May 2016 set out ambitious plans for housing. Nothing was left out, as the plan aimed to address the housing shortage, the delivery of social housing, homelessness, the rights of tenants and landlords in the private rented sector as well as planning reform. Recognising that home ownership is the tenure which people ultimately aspire to, it also aimed to promote and protect home ownership. The main action was that, within 100 days of taking office, the newly appointed Cabinet Minister for Housing, in conjunction with the new Oireachtas Committee on Housing and Homelessness, would publish a new Action Plan for Housing.

The overarching aim of the new *Action Plan for Housing and Homelessness*, published in July 2016¹¹, was again to ramp up the delivery of housing supply across all tenures. It further aims to help individuals and families meet their housing needs, and to help those who are currently housed to remain in their homes or be provided with appropriate options of alternative accommodation, especially those families in emergency accommodation. The Plan contains ambitious targets to:

- Double the annual level of residential construction to 25,000 homes;
- Deliver 47,000 units of social housing in the period to 2021;
- Mobilise and deploy the right mix of resources and actions to increase housing output, at more affordable prices;

⁸Social Housing Strategy 2020 – Support, Supply and Reform, 2014, available at <http://www.environ.ie/en/PublicationsDocuments/FileDownload,39622,en.pdf>

⁹ At the time a total of 89,872 households were assessed as qualified for housing support as of May 7th 2013 although the real number was considered to be closer to 40,000/50,000 when those categorised as 'dependent on rent supplement' are excluded. The next Housing Needs Assessment is due at the end of 2016.

¹⁰ Stabilising Rents, Boosting Housing Supply, November 2015, available at <http://www.housing.gov.ie/sites/default/files/migrated-files/en/Publications/DevelopmentandHousing/Housing/FileDownload%2C43556%2Cen.pdf>

¹¹ Action Plan for Housing and Homelessness, July 2016 <http://www.housing.gov.ie/housing/policy/launch-rebuilding-ireland-action-plan-housing-and-homelessness>

- Encourage the delivery of more and better rental options;
- Keep people in their homes; and
- Bring vacant and under-utilised properties back into full use.

A high-level Housing Delivery Office has been established within the Department of Housing, Planning, Community and Local Government (DHPCLG) to support local authorities, Approved Housing Bodies (AHBs) and all stakeholders involved in the delivery of housing projects, and to drive delivery of some of the key ambitious private and social housing elements of the Action Plan. The scale of the investment planned is €5.5 billion over the next five years.

In addition, the separate series of Action Plans for Jobs¹² since 2012 together with successive Budgets have contained initiatives for the industry.

However, despite numerous initiatives in recent years, output in the industry remains well below where it should be. A number of obstacles have delayed the industry returning to more normal levels of activity, notably the availability of skills and access to finance. The challenge will be ensuring that the appropriate public and private funding is forthcoming to facilitate the delivery of projects in the pipeline.

Skills are a significant short-term challenge which could derail the recovery

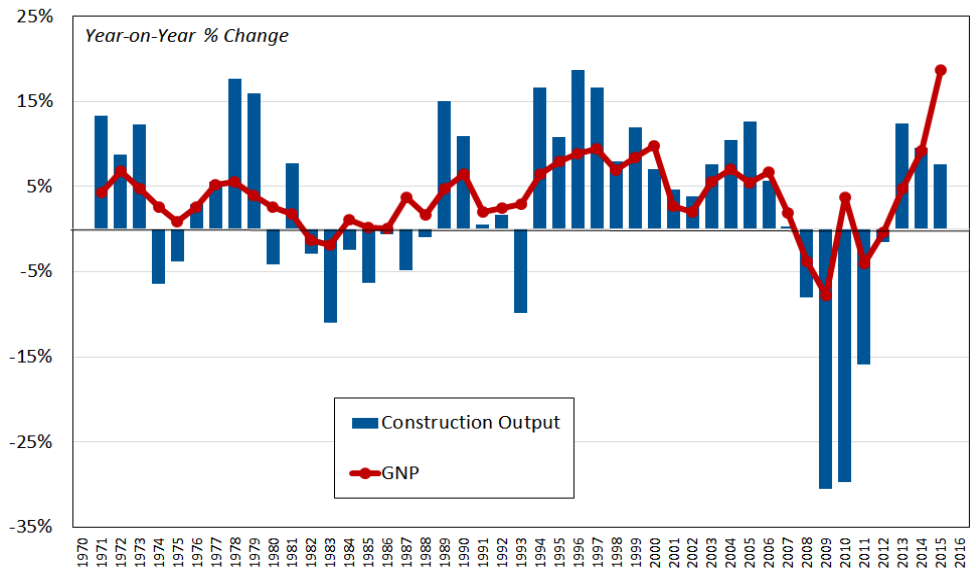
Equally, the ramping up of construction investment, both private and public, will require access to the appropriate skills to ensure current and pent-up demand for construction can be met while also delivering value for money. Having lost almost 180,000 direct jobs between 2007 and 2013, and only regained 39,200 to date, the re-establishment of a strong skills base across the full range of occupational groups is of paramount importance for the industry, from elementary construction occupations right up to qualified skilled craftspersons, operatives, technicians and professionals.

There is a significant short-term challenge for the industry with respect to construction apprentices. With an intake of just 1,090 on average in the past five years, compared with 3,212 on average in the period 2006-2010, much work needs to be done to promote a greater awareness of opportunities available through trades and encourage more apprenticeship opportunities. There may also be difficulties sourcing specialised and experienced workers to meet the demand for renovation work in the regions. The industry is in recovery phase and a skills shortage could threaten to derail what may well be the most positive outlook for construction in a decade. We examine the medium-term prospects for construction below and will consider the manpower implications in Section 5. Firstly, a brief review of historical trends is provided.

3.2 CONSTRUCTION OVERVIEW

The construction industry, just like the economy, generally tends to be subject to fluctuations in activity levels. The construction cycle involves shifts over time between periods of relatively rapid growth in output and periods of stagnation or contraction. Like GNP, the fluctuations do not follow any predictable pattern but will be influenced at any point in time by a number of factors, including Government policy, the state of the public finances, trends in interest rates, access to finance, incomes and employment, demographics, private sector investment and the level of confidence in the economy. The industry will most likely remain susceptible to the economic cycle but economic policy makers need to pre-empt shocks to the economy to ensure their impacts on the construction sector are as limited as they can be.

¹² <https://www.djei.ie/en/What-We-Do/Business-Sectoral-Initiatives/Action-Plan-for-Jobs/>

FIGURE 3.1: THE CONSTRUCTION AND GNP CYCLE 1970-2016E

Source: CSO National Accounts.

Such fluctuations have implications for the resource requirements of the industry, most notably labour, which has similarly moved to respond to the swings in demand in the construction industry. Looking back over four and a half decades, the most vigorous growth periods in the construction industry were in the late 1970s, the late 1980s, mid-to late 1990s and mid-2000s. Conversely the most severe recession over the same period was experienced during the financial crisis when the volume of construction output contracted by almost two-thirds between 2007 and 2012. In the same time period, almost 180,000 direct jobs were lost in the sector, which was equivalent to 65 per cent of the number of persons employed at the time of the most recent peak in employment (Q2 2007). Notwithstanding the restoration of 39,200 direct construction jobs in the last three years, this represents just over 20 per cent of the total jobs lost in the industry during the financial crisis. Having lost many of the workers employed at the peak through emigration, upskilling and retirement and with them a great deal of knowledge and vital skills, leaves the industry with a serious challenge for the future.

Sector in recovery since Q1 2013 but off a low base

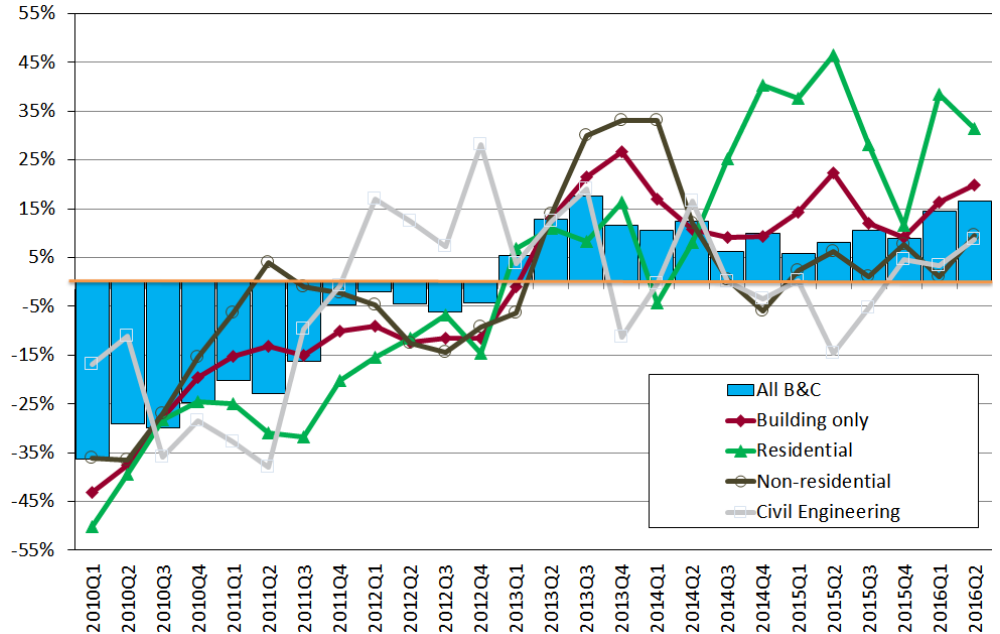
Focusing on more recent trends in construction activity, the sector has been in recovery phase since Q1 2013, according to the CSO Production in Building and Construction Index. The overall index has performed well since, increasing at annual rates of 11.7 per cent in Q4 2013, 9.9 per cent in Q4 2014 and 8.9 per cent in Q4 2015. The index has performed strongly in 2016 to date, increasing by 5.6 per cent in the first quarter and a further 6.3 per cent in the second quarter and at an annual rate of 16.5 per cent.

Looking at the sub-components, residential construction was the first sector to recover, albeit from a low base, with the index recording a sharp acceleration over the following three years 2013-2015, culminating in eight quarters in a row of double digit annual growth by Q2 2016. The recovery in non-residential construction commenced strongly in 2013 but moderated in 2014 and 2015, recording annual growth of 8.2 per cent and 4.3 per cent respectively. The sector recovered strongly in Q2 2016, increasing at an annual rate of 9.4 per cent. Civil engineering has been the one category which has yet to see a sustained recovery as growth patterns continued to be volatile until Q2 2016 when the volume of civil

engineering output increased by 4.2 per cent in the quarter and by 8.7 per cent year-on-year.

FIGURE 3.2: BUILDING AND CONSTRUCTION INDEX – VOLUME OF PRODUCTION BY TYPE OF CONSTRUCTION

(Quarterly, Base 2010 = 100, seasonally adjusted, year-on-year percentage change)



Source: CSO

The total value of building and construction output, as per the investment measure in the National Accounts, was estimated at €14.2 billion in 2015, which represented a value increase of 14.2 per cent or a volume increase of 13.5 per cent after allowing for construction inflation. When the costs associated with the transfer of land and building are excluded (€0.8 billion), around one-third of the total represents residential construction and the balance of two-thirds represents non-residential construction, including civil engineering.

An alternative measure of construction output consists of the gross value added (GVA) which measures the real contribution of the construction sector to economic growth as the wages and profits earned by building workers and construction companies. On this basis, construction was valued at €6 billion or 3 per cent of GNP in 2015. This compares with less than 2 per cent at the height of the recession and 11 per cent of GNP at the peak. The substantial contraction in the output of the construction industry was also associated with a reduction of around 14,500 in the number of enterprises in the sector between 2008 and 2014 (latest available) (Section 4).

A more current measure of construction activity is available from the monthly Ulster Bank Construction PMI survey which provides a snapshot of the state of the construction industry based on a survey of senior purchasing executives. The most recent PMI for August 2016 reported a further solid rise in activity with the index firmly in expansion territory. Sentiment rose strongly to stand at one of the highest readings in the survey’s 16-year history, marking the 36th consecutive month of expansion by Irish construction firms. Residential and commercial construction activity continue to outpace the civil engineering sector. In a special question regarding the possible impact of Brexit, almost 60 per cent of respondents indicated that they expected no impact over the coming year,

with broadly similar proportions of companies expecting activity to be boosted or reduced by the result.

3.3 MEDIUM-TERM PROSPECTS FOR CONSTRUCTION

The following review of construction prospects uses a more comprehensive measure which captures the value of new work put in place across each segment of the industry, notably from the construction of residential and non-residential buildings as well as civil engineering projects, together with the value of major and minor repair and maintenance expenditure on existing buildings and structures.

Based on DKM's output measure, the value of construction output was estimated at €12.7 billion in 2015 or 6.2 per cent of GNP (4.9% of GDP)¹³.

Construction scenario reflects current policy, allowing the industry to gear up in advance

The prospects for the three sub-sectors in the period to 2020 are set out below using a bottom up approach which considers the value of output across each category of work in the industry.¹⁴ The scenario presented for construction output to 2020 represents the level of construction investment based on stated Government policy set out for residential and infrastructure provision. During the last construction boom what emerged was an unsustainable property bubble and poor value for money in terms of the investment that was put in place at the time. By assessing the required level of construction investment needed to underpin economic growth, population growth and competitiveness in the medium-term, the implications for jobs and skills across the sector can be determined (Section 5). This will allow the industry to gear up its labour and skills resources in advance and thus avoid the problems which emerged at the time of the last peak in construction activity. If the supply side of the economy can respond appropriately, this should help ensure the avoidance of excessive construction inflation, which was a negative consequence of the last construction boom.

3.3.1 Sectoral Prospects – Residential Construction

In the residential sector, the last decade has seen a dramatic scaling back from a cyclical peak in terms of housebuilding activity. The total number of residential units commenced declined from almost 85,000 (including local authority units) in 2007 to just over 8,000 in 2015. The estimate for commencements in 2016 is 12,000, implying the level of housing supply in the short-term will be well below what is considered to be the average annual requirement of 25,000 per annum to accommodate the growth in population and household formation.

Ascertaining the level of residential construction is complex and depends on a number of factors influencing both the demand and supply of housing. On the demand side, buyer confidence, housing affordability, incomes and mortgage rates as well as the availability of

¹³ The basis for this measure is the official Construction Industry Review and Outlook (CIRO) measure which was published by the Department of the Environment, Heritage and Local Government until 2010. DKM has continued to estimate this measure, which is the only measure of construction output which uses a bottom up approach by taking account of the value of output across each category of work in the industry. This measure captures domestic activity by construction firms only.

¹⁴ The individual categories of work across the three segments residential, private non-residential and civil engineering are summarised in Appendix 1 and are the same as those presented in the Construction Industry Review and Outlook (CIRO) publication, last published in October 2010 by the Department of Housing, Planning, Community and Local Government and available at <http://www.housing.gov.ie/search/archived/archived/archived/current?query=Review%20of%20the%20Construction%20Industry%20and%20Outlook>

mortgage finance will determine an individual's willingness to transact in the market. There are also issues on the supply side such as the lack of development viability in some locations, access to finance, especially for smaller housebuilders, and the requirement for high density in some locations, as well as the infrastructural investment required upfront of development on many larger sites.

Establishing supply is further complicated by data problems and by the fact that the published figures for housing completions, which are based on electricity connections, have included dwellings which were either finished or near completion during the boom years and remained unsold due to the financial crisis. As these units were sold off by banks/receivers and NAMA post 2008, they were counted in the completions, even though they were not built in the year in which they were sold. For this reason the true level of housebuilding which determines the volume of residential construction output each year is likely to have been less than represented in the electricity connections. This is evident from the commencements as assuming a lag of one year between commencement and completion, they have consistently been well below the number of units connected for electricity in the 2010-2015 period. This problem is likely to become less prevalent from 2017 onwards.

Potential housing requirement nationally could be as high as 40,000 units

There is considerable pent up demand in the market at present with projections from the Housing Agency suggesting that the housing supply requirement in the Dublin region is equivalent to 37,581 new dwellings in the period 2014-2018 or almost 80,000 across all urban settlements.¹⁵ Across the country as a whole, the ESRI has projected a need for between 19,000 and 33,000 additional dwellings per annum - an average of 26,000 - which would amount to around 130,000 dwellings in the five years 2014-2018.¹⁶ In the meantime, just 8,779 new units were completed (i.e. connected for electricity) in Dublin in the period January 2014 to August 2016 - an estimated 23 per cent of the total requirement 2014-2018 - and 32,849 new units nationally - an estimated 25 per cent of the total requirement in the same period. Moreover, just 26 per cent of the estimated requirement has been provided to date in the Greater Dublin Area (GDA), where the supply shortage is most acute.

The Table below estimates the potential requirement across the State in the period September 2016 to end of 2018 at equivalent to an average of almost 42,000 units per annum, around 12,500 of which are required in the Dublin market. This is significantly short of the current level of housebuilding as evident from the commencements and completions data.

¹⁵ Housing Agency, July 2015, available at <http://www.housingagency.ie/getattachment/Our-Publications/Latest-Publications/FINAL-TO-PRINT-Housing-Supply-Demand-Report-v4.pdf>

¹⁶ Alternative Scenarios for New Household Formation in Ireland, Special Article in ESRI QEC Spring 2014.

TABLE 3.1: ESTIMATED ANNUAL HOUSING SUPPLY REQUIREMENT TO 2018

County	2014-2018 Minimum Housing Units Required	% of National Requirement	Projected Average Annual Requirement 2014-2018	Units Completed (3)			% Achieved in 2014- Aug 2016	Units yet to be Provided Sep 2016- 2018 (28 months)	Average Annual Requirement up to 2018 (Est)
				2014	2015	Jan-Aug 2016			
Dublin Total 1)	37,581	29%	7,516	3,268	2,891	2,620	23%	28,802	12,344
Mid-East	11,999	9%	2,400	1,196	1,695	1,203	34%	7,905	3,388
Total GDA	49,580	38%	9,916	4,464	4,586	3,823	26%	36,707	15,732
Kildare	5,204	4%	1,041	548	768	493	35%	3,395	1,455
Meath	3,766	3%	753	403	488	453	36%	2,422	1,038
Wicklow	3,032	2%	606	245	439	257	31%	2,091	896
Other Urban Areas	30,788	24%	6,158						
All Urban Areas 1)	80,368	62%	16,074						
Rest of Country	49,632	38%	9,926	6,552	8,080	5,344	25%	60,444	25,905
State 2)	130,000	100%	26,000	11,016	12,666	9,167	25%	97,151	41,636

Source: 1) Housing Agency, July 2015 <http://www.housingagency.ie/getattachment/Our-Publications/Latest-Publications/FINAL-TO-PRINT-Housing-Supply-Demand-Report-v4.pdf>

2) Alternative Scenarios for New Household Formation in Ireland, Special Article in ESRI QEC Spring 2014.

3) Completions data from www.environ.ie

Note: The Greater Dublin Area (GDA) is defined to include the Dublin Region and the three surrounding counties of Kildare, Meath and Wicklow, which comprise the Mid-East Region. It is not possible to ascertain the completions to date in other Urban Areas as these were defined by the Housing Agency based on 272 urban settlements across the country having a resident population of 1,000 or more and the completions data are not provided at this disaggregated level.

The range of publications noted earlier contain ambitious plans for housing supply, although it is not easy to disentangle the level of new house building to be provided from other supply measures such as social housing acquisitions and leasing initiatives. The most recent Action Plan has the following overall targets:

- A doubling of output to deliver over 25,000 units per annum on average over the period of the plan 2017-2021.
- A total of 47,000 social housing units by 2021 with a particular focus on an accelerated and expanded social housing construction programme. Within this total the Plan envisages a significant increase in the level of social housing building by local authorities and approved housing bodies to over 5,000 units per annum by 2021.
- A potential social housing supply of the order of 5,000 units over a five year period from the proposed NTMA/Private Sector Housing Fund to be established in 2017.

The **National Asset Management Agency (NAMA)** is also delivering new houses and apartments by working with its receivers and debtors. The agency has already funded the completion of 2,700 new homes and has plans to fund, on a commercial basis, the delivery of up to 20,000 new residential units over the period to 2020 across some 80 new housing sites. Some 90 per cent of these units will be in the Greater Dublin Area and about 75 per cent will be mainly starter homes. However, there are some issues around development viability and infrastructure deficits on these sites, which suggests that these units are more likely to be delivered towards the end of the decade.

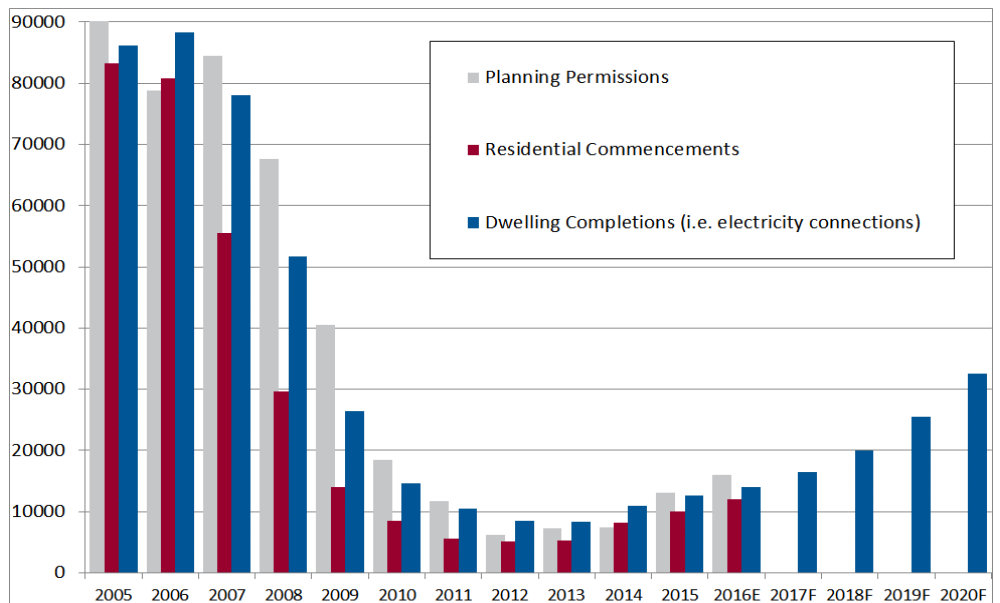
The **Ireland Strategic Investment Fund (ISIF)** is co-investor in private residential schemes via a number of funding platforms which have the potential to deliver in the region of 16,000

units across the main urban areas over the medium-term. Separately ISIF is examining off-balance sheet options for the provision of social housing, including the potential for a housing investment vehicle to fund affordable rental units. ISIF is also exploring the opportunities for a dedicated Infrastructure Development Fund which would support the delivery of housing enabling infrastructure in large scale priority development areas.

Based on the above the total level of new housebuilding, should the targets in the Plan be achieved, could potentially be of the order of 36,000 units per annum by the end of the Plan period.¹⁷ This level of house building is not too far from the 42,000 estimated above and compares with an estimated 12,000 commencements this year. Both figures represent around a threefold increase in current supply, which would give rise to a substantial increase in the level of residential investment by 2020.

If the required supply levels are to be delivered, the industry will need to ensure it has sufficient specialised and experienced craftspersons and skilled workers to build (and renovate) dwellings to the design and building standards required. While the employment data (Section 3) does not separately identify construction workers by sub-sector, residential construction is the most labour intensive segment of the industry. For the purposes of assessing the impact on construction employment, **the medium-term scenario in this report estimates that 14,000 new dwellings will be completed in 2016, with a further ramping up to 20,000 in 2018 and 32,500 by 2020** (Figure 3.3). This projected level of supply is conditional on the most pressing issues and actions identified in the Action Plan for Housing and Homelessness being addressed by policy makers to ensure confidence returns to housebuilders and house buyers and to restore a properly functioning housing market.

FIGURE 3.3: PROJECTED HOUSEBUILDING TO 2020



Source: Planning Permissions from Central Statistics Office; Department of Housing, Planning, Community and Local Government (DHPCLG) and DKM estimates 2016 to 2020.

¹⁷ The estimate of 36,000 units is derived on the basis of 25,000 units from the private sector, 5,000 units from the public sector, 1,000 units from the NTMA/Social Housing Fund and up to 5,000 units per annum to be funded by NAMA.

3.3.2 Sectoral Prospects – Private Non-residential Construction

The economic recovery has generated increased optimism about the prospects for the private non-residential sector, which includes industrial, office, agricultural, retail and tourism buildings, as well as sports and leisure facilities. An analysis of planning permissions shows that a total of 6.76 million square metres of non-residential buildings were granted permission in the last five years. Of the total, the largest building type was agricultural and related buildings (35% of the total) followed by offices (13%) and industrial buildings (12%). Within the industrial total the Foreign Direct Investment (FDI) sector is generating significant opportunities for the construction industry, as existing and new FDI manufacturing companies seek to expand in, or relocate to, Ireland.

Moreover estimates¹⁸ suggest that some **18 companies are either in the process of establishing data centres in Ireland or are significantly expanding existing operations in an overall investment valued at €3.7 billion.** Perhaps the most significant of these is the announcement from Apple that it is to develop a 24,505 square metre data centre in Athenry, County Galway amounting to a total estimated investment of €850 million. While this project will include specialist equipment, much of which will be imported, the construction related investment is likely to be substantial for the region in 2016 and 2017.

The **Ireland Strategic Investment Fund (ISIF)** is also currently evaluating investment proposals across a range of sectors of the Irish economy, including from companies in the food, energy, infrastructure, technology, real estate and SME sectors. A total of 300 potential investment opportunities are on the ISIF radar with significant potential to deliver a positive economic impact. By end of this year, the Fund will have committed a total of €3 billion to Irish investment projects since 2015. With more than €7 billion in funding to be deployed over the next three to five years, a proportion of these investments is likely to generate a demand for new buildings and infrastructure.

Significant quantum of office building currently under way or planned in Dublin

In a recent analysis of the Dublin office supply pipeline, JLL concluded that there is currently 325,161 sqm of space under construction across Dublin, of which 84 per cent is in the city centre and 16 per cent is in the suburbs. Of that total pipeline stock, 41 per cent is already let, leaving just 195,096 sqm of available space. This space will come on stream over the next 3 years. JLL have identified a number of other schemes, totalling approximately 61,316 sqm, which will move 'on-site' over the coming months, with completions expected before the end of 2018. There is also an estimated 46,452 sqm of available space under refurbishment plus a further potential 37,161 sqm pipeline of refurbishment space in buildings where leases are due to expire. JLL's analysis also identified an additional 445,935 sqm of space that has been granted planning permission plus other schemes in planning or pre-planning phases. On this basis, there is potentially some 702,347 sqm of new supply, excluding pre-lets and a potential 83,613 sqm of newly refurbished space, which is expected to be delivered over the next three to four years. This compares with an average take-up of 185,806 sqm per annum in the last 10 years. Based on this assessment, JLL concluded that Dublin has the capacity to welcome new occupiers into the city, should companies consider relocating from the UK on foot of Brexit.¹⁹

NAMA a significant player in the commercial property market

Separately NAMA is expected to be an important player in the commercial market over the next four to five years. NAMA has spent an estimated €1 billion to date on the completion of developments in the commercial sector and is willing to invest a further €3 billion on

¹⁸ In a report compiled by consultants Callaghan Engineering, according to <http://www.irishtimes.com/business/technology/data-centre-investments-to-top-3-7bn-1.2382929>

¹⁹ Perspective Dublin Office Pipeline, JLL, 2016.

commercial projects it has an interest in over the coming years. Much of this investment is expected in Strategic Development Zones (SDZs), most notably in the North Lotts and Grand Canal Docks SDZ in the Dublin Docklands. The overall amount of office space planned on sites in which NAMA has a financial interest is of the order of 353,000 sqm out to 2025. Up to 2,600 residential units are also planned over a 7-10 year period. NAMA currently has interests in around five operational projects in the Docklands SDZ which are expected to deliver at least 130,000 sqm of commercial space over the next four to five years.

Retail benefiting from the recovery in consumer spending

The underlying trend in consumer sentiment over the past two years has been upwards, according to the KBC/ESRI Consumer Sentiment Index. Encouragingly too for retailers, the volume of retail sales was up by 8.2 per cent in 2015 and by 5.2 per cent year-on-year in August 2016. Moreover, consumer spending staged its first rebound in four years in 2014 and recovered strongly in 2015 (+4.5%) and recent forecasts expect it to improve further in 2016 and 2017, supported by employment and income growth as well as historically low interest rates. This is all welcome news for the retail property market which is witnessing a strong increase in demand for space from new entrants as well as from existing retailers.

Tourism

There is also a number of projects underway and planned in the tourism (including hotels), sector. These include the proposed Center Parcs holiday village which received planning permission from Longford County Council in October 2015 to develop a €233 million Longford Forest holiday village on a 395 acre site in the area.

In the hotel sector, where supply is under pressure, most notably in Dublin, an estimated 4,200 hotel rooms have been granted planning permission in Dublin. Cushman and Wakefield Research have estimated that just over 665 hotel rooms were under construction in Dublin and a further 222 rooms across the rest of the country at end of June.²⁰ Separately, CBRE expect that over 1,000 hotel rooms will be under construction in Dublin by the year-end.²¹ There is also a growing level of investment activity in the hotel sector, with some transactions likely to generate construction opportunities for hotel refurbishments and extensions.

Thus, given the scale and extent of non-residential projects identified above, many are expected to be under construction in the 2016-2018 period. While difficult to comprehensively measure and value the quantum of private non-residential construction put in place historically across the country, the construction projection presented in Tables 3.6 are estimates which assume the volume of non-residential building put in place declines from 2018 onwards, as planned data centres are completed. However, the main challenge for all private non-residential projects will be putting the funding in place, once planning permission has been received. This could delay the commencement dates on some projects and thus the delivery timeline.

3.3.3 Sectoral Prospects – Public Sector Construction

The level of public sector construction activity is predominantly determined by the amount of public capital investment provided for productive and social infrastructure projects. The former includes spending on the national and non-national road network, water services, airports, seaports and harbours, as well as investment by the respective semi-State organisations responsible for transport, energy and telecommunications. There is also some private sector investment by private companies operating in the energy and telecommunications sectors. Investment in social infrastructure includes the public capital

²⁰ Irish Hotel Market Review, Cushman and Wakefield Research, Q2 2016.

²¹ Ireland Overall Bi-Monthly Research Report, CBRE, September 2016.

provisions in, for example, public housing, educational buildings, hospitals, prisons, courthouses, garda stations and libraries. In addition there is a new Public Private Partnership (PPP) programme which builds on the more recent programmes launched in 2012 and 2014.

As with the housing sector, there are growing deficits in public sector infrastructure, following years of austerity and given that the economy has expanded since 2013. The June 2016 report from the Irish Fiscal Advisory Council (IFAC) noted that public capital expenditure is more easily curtailed than current expenditure during a fiscal crisis with the result that there has been a prolonged period of low public investment since 2008.²² **The total Exchequer capital provision represented 2.2 per cent of GNP in 2014 and 1.8 per cent in 2015, compared with 5.6 per cent in 2008.**

IFAC stated that the current and projected levels of public investment are low by historical and international standards. Moreover, future public capital provisions were found to leave little room for upgrading and expanding the public capital stock, after provision for depreciation of the existing stock was provided for.

The normal allocations for the main spending departments responsible for civil engineering and social infrastructure are set out in the Multi-Annual Exchequer Capital Investment Framework (MAECIF) for the period 2016 to 2021.²³ **The total Exchequer capital provision in the Capital Plan over the period 2016-2021 is €27 billion** (€4.5 billion on average per year). The main spending departments from a construction perspective are Transport, Tourism and Sport (€8.065 billion over period 2016-2021), Housing, Planning, Community and Local Government (€4 billion), Education and Skills (€3.82 billion) and Health (€3.1 billion). These figures have however been somewhat overtaken by events, notably:

- The *Programme for Government* (PfG) states that it intends to protect the existing capital investment plan, which set out €42 billion of investment for the next six years.²⁴ There is also a commitment to **leverage additional private investment in sectors struggling with large infrastructure deficits, including residential care, housing, regional transport and third level education.**
- The PfG further states that the level of capital investment in transport, education, health and flood defences will be increased post the mid-2017 review of the Capital Plan.
- A further €4 billion in capital investment up to 2021 is committed in the PfG, of which an estimated €1.5 billion is expected to be allocated to social housing. The Irish Fiscal Advisory Council has estimated that this additional capital allocation would raise **average public investment to around 2.4 per cent of GNP in the period to 2021, compared with its long-run average of 3.7 per cent of GNP in the recent period 1995-2015.**²⁵

²² Kennedy, A. Public Capital, Investment Stocks and Depreciation, Irish Fiscal Advisory Council, June 2016 available at http://www.fiscalcouncil.ie/wp-content/uploads/2012/01/Public-Capital-Final_Website_080616.pdf

²³ 2016 Revised Estimates for Public Services, Government of Ireland 2015. www.per.gov.ie/wp-content/uploads/2016/03/Revised-Estimates-for-Public-Services-2016.pdf

²⁴ The €42 billion includes the €27 billion in direct Exchequer investment in the MACIF plus €14.5 billion investment by the State-owned sector and €0.5 billion in PPP funding.

²⁵ IFAC, Op. Cit. p5.

- The Mid-Year Expenditure Report (MYER) published by DPER in July 2016, in advance of the October Budget, indicates that **the additional cumulative capital expenditure over the period 2017 to 2021 will be €5.1 billion**²⁶.

While these commitments are very encouraging for construction, one needs to be mindful of the available fiscal space, which limits the resources available to the Government for additional expenditure and/or tax reductions, while ensuring compliance with the fiscal rules. The MYER, indicates that this additional expenditure is back-end loaded, with over 80% allocated to the 2019-2021 period. Moreover, any decisions in relation to additional capital spending over and above what is agreed in the Capital Plan will be part of the Budget Estimates process and will be announced on Budget day. Accordingly, the €5.1 billion has not been included in the medium-term construction output projections presented in Section 3.4.

When other sources of funding are included, as set out in the Public Capital Programme (PCP), the total PCP provision in 2016 is €7.18 billion, 6.4 per cent higher than the corresponding PCP provision of €6.75 billion in 2015. The PCP provision represents 3.3 per cent of GNP in both years, compared with an average PCP allocation of 5.8 per cent in the 1995-2015. Energy, Social Housing, Culture, Health, Public Transport, and investment in public buildings by the OPW are among the areas expected to record increases in investment in 2016 compared with 2015.

The projections for construction output use a proportion, estimated at around 70 to 75 per cent, of the public capital provisions to ascertain estimates for investment in public non-residential construction and civil engineering. Estimates for any private investment in, for example, education, health, energy and telecommunications are also included. Table 3.2 summarises the main public capital provisions for social and productive infrastructure in the period 2016-2021 which will impact construction output over the medium-term.

3.3.4 Sectoral Prospects - Renovation

Since the volume of construction work collapsed during the recession, the renovation market has increased its share of total construction activity to an estimated 30 per cent from around 20 per cent during the mid-2000s. Renovation takes place in all three segments of the market, undertaken by households, businesses and the public sector. The aggregate figure for major and minor investment in renovation works is estimated at around €3.86 billion in 2015, which was 5.4 per cent higher in volume terms than 2014.

Anecdotally, it seems that the volume of residential renovation has started to recover with interest rates at a low level and following the resumption of house price growth in the second half of 2013. The lack of adequate supply over recent years may also have spurred households to renovate instead of move house.

Evidence of the volume of private residential renovation work is available from the Home Renovation Incentive (HRI) scheme for owner occupiers, which was introduced across the country in October 2013 for homeowners and for landlords from October 2014.

²⁶ Mid-Year Expenditure Report, Department of Public Expenditure and Reform (DPER), July 2016 available at <http://www.merrionstreet.ie/en/News-Room/News/Mid-Year-Expenditure-Report-Launched.html>

The scheme attracted €1.029 billion worth of construction work in almost 66,000 projects on 45,000 properties in the period 2014 – 1 September 2016.²⁷ The work was carried out by 8,351 registered contractors. The profile of work done was dominated by home extensions (35 per cent of total works by value); general repairs and renovations (24 per cent), window replacement (11 per cent) and kitchen renovations (10 per cent). There is likely to be considerable variation in the value of each project undertaken but the average, based on the above data, is around €16,000.

There is further investment in public sector renovation, a proportion of which, under the social housing investment programme, is to go towards refurbishment of the social housing stock, and includes a range of housing adaptation grants which will assist older people and people with disabilities to continue living in their own homes. Public sector housing renovation also provides funding for remedial works, energy efficiency improvements and turnaround of casual vacancies and vacant stock.

The non-residential sector also undertakes renovation works and where data is not available on the individual categories of work, it is assumed that the volume of renovation output increases in line with the rate of real GNP growth.

The renovation sector is likely to be very fragmented, comprising a large number of small contractors and sole traders. It is a sector which is thus heavily reliant on sub-contractor labour, comprising specialised trades and occupations, many of whom would have come through the apprenticeship system. As transactions recover in the housing market and as new owners of old homes engage in renovations work, there are likely to be increased opportunities in the renovation market. Alongside economic recovery and increases in employment and incomes, growth is expected in the total renovation market in the coming years. This reinforces the necessity to ensure the industry attracts young people into apprenticeships and the construction trades.

²⁷ HRI Stats Revenue, 1 September 2016. The Home Renovation Scheme provides tax relief for home owners (from October 2013) and landlords (from October 2014), by way of an income tax credit at 13.5 per cent of qualifying expenditure on repair, maintenance and improvement (RM&I) works carried out on a residential property by qualifying contractors, until 31 December 2016. The works must cost a minimum of €4,405 (before VAT) and attract a credit of €595, up to a maximum of €30,000 (before VAT), where a maximum credit of €4,050 applies. The credit is payable over the two years following the year in which the work is carried out and paid for.

TABLE 3.2: PUBLIC CAPITAL INVESTMENT IN SOCIAL AND PRODUCTIVE INFRASTRUCTURE 2016-2021

Main Areas of Investment	Investment	Priority Areas/Key Projects 2016-2021
Public Sector Infrastructure - Exchequer Funding - State-owned investment - PPPs	€42bn (+€4bn) €31bn €14.5bn €0.5bn	Total Capital Plan is expected to support in the region of 45,000 jobs over six years, excluding the additional €4bn allocated in the Programme for Government (PfG). This is the €27bn in the Capital Plan plus the additional €4bn in the PfG. The total capital investment associated with the key areas/projects listed below amounts to €32.7bn over the six years 2016-2021.
Energy Transmission and Distribution Networks	€5.75bn by ESB, Ervia, Bord Na Móna, Eirgrid	<ul style="list-style-type: none"> North-South Transmission Line – a second electricity interconnector between Ireland and Northern Ireland; Smart Metering; Grid Link and Grid West – to increase the grid capacity and secure electricity supply to the south and east of Ireland and the west of Ireland, respectively;
Water and Wastewater quality and capacity	€4bn by Irish Water	<ul style="list-style-type: none"> To address the deficits in drinking water quality and capacity, wastewater quality and capacity, and repair much of the infrastructure;
Flood Relief	€430m	<ul style="list-style-type: none"> Of which €348m will be directed towards major schemes; 6 major flood relief schemes under construction, including Ennis, Bray, Waterford, River Dodder and South Campshires Co Dublin; A further 30 schemes at the planning/design stage, including Cork City, Arklow Co Wicklow, Enniscorthy Co Wexford, River Poddle Co Dublin, Morrell River Co Kildare and Midleton Co Cork;
Road Improvement and Maintenance – National, Regional and Local Roads	€6bn	<ul style="list-style-type: none"> €4.4bn for road maintenance and €1.6bn for new projects; The majority of ‘shovel ready’ National roads projects will not commence construction until 2019/20 due to funding constraints;
Education – Primary, Secondary and Third Level	€3.82bn	<ul style="list-style-type: none"> To provide 19,000 primary school places by 2018 and an extra 43,000 secondary school places by 2022; €110 million for 3rd level facilities plus an extra €200 million via PPP’s; Notable projects in the 3rd level sector include, the Trinity College Business School, student accommodation at NUIG in Galway, a Library Building at the University of Limerick and the DIT Grangegorman campus development;
Healthcare Infrastructure	€3.1bn	<ul style="list-style-type: none"> Projects to commence in the next three years: the National Children’s Hospital; a new 120-bed National Rehabilitation Hospital in Dún Laoghaire; the Central Mental Hospital in Portrane; and oncology centres in Dublin, Cork and Galway; A new emergency department (ED) to open in Limerick in 2017; two further ED’s planned in Galway Hospital and Beaumont Hospital;
Public Transport	€3.6bn	<ul style="list-style-type: none"> Projects either under construction or expected to be advanced over the coming years include: Luas Cross City project; Reopening of the Phoenix Park Tunnel; the multi-phase DART expansion programme (to Balbriggan, Maynooth and Hazelhatch); upgrading of Quality Bus Corridors; new and replacement buses; Metro North – construction to commence in 2021;
State and Regional Airports, Seaports		<ul style="list-style-type: none"> A new €320m runway for Dublin Airport due to start mid-2017; Investment in upgrading regional airports of around €38m; A number of seaports have expansion plans;
Third Phase of PPP’s – Transport, Education, Justice.	€500m	<ul style="list-style-type: none"> Roads – 3 PPP projects underway: M17/M18 Gort to Tuam; M11 Gorey to Enniscorthy; N25 New Ross Bypass; New Road PPPs are not anticipated in the 2016-2021 period Education: DIT Grangegorman campus - 50% of funding from PPPs – a 73-acre education and health campus development comprising a primary school; a public library; sports and recreation facilities; student accommodation; Primary Care Centre; Community Nursing Unit; A fifth schools PPP bundle under construction comprising five schools. Courthouses and Garda Stations - €160m provision;
Social Housing and Housing Infrastructure – as per Action Plan	€5.5bn (Action Plan figure)	<ul style="list-style-type: none"> Address Homelessness; Accelerate Social Housing delivery; Build more private housing; Improve the Rental sector; Utilise existing housing stock.

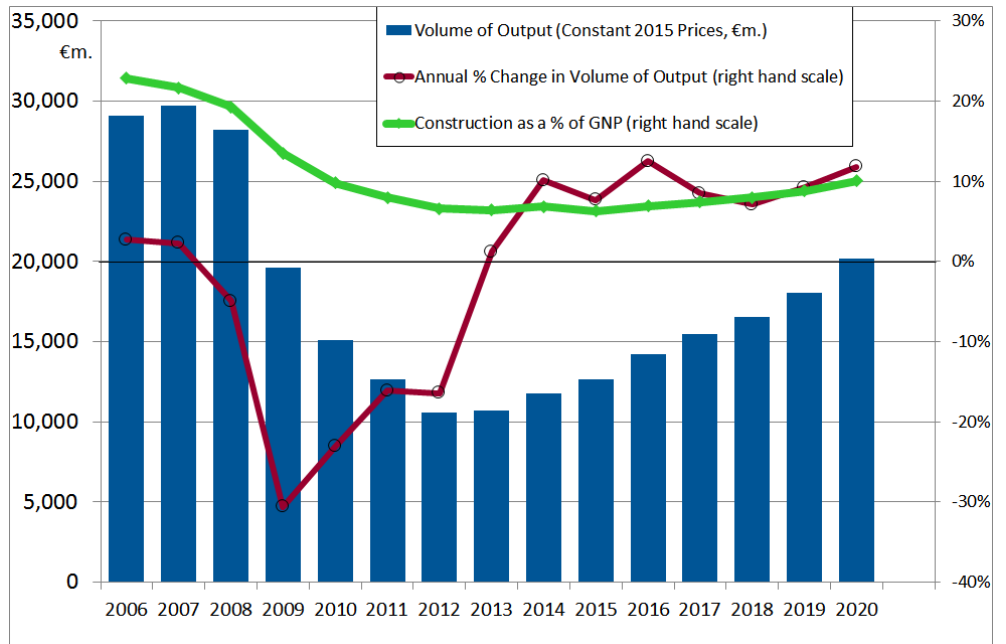
3.4 OVERALL CONSTRUCTION PROSPECTS

The scenario presented for construction output shows that the value of output recovered in 2015 to around **€12.65 billion** (6.2 per cent of GNP), having reached its lowest value in the current cycle in 2012 (€9.4 billion). The outturn for 2015 is based on the 12,666 house completions. For 2016 the forecast is for 14,000 new units, with further increases to 20,000 units in 2018 and 32,500 in 2020.

The overall volume of construction output is forecast to increase by **12.5 per cent in 2016 followed by 8.5 per cent in 2017 and 7.1 per cent in 2018. The average annual growth rate in the period 2016-2020 is projected at around 9 per cent.** The volume of construction output by 2020 is forecast to reach €20.2 billion in 2015 prices or just over 10 per cent of GNP. These strong growth rates reflect an industry that has been in recession for six years until 2013 and needs to catch up with an economy that has expanded strongly in the meantime. With a significant number of projects in the planning pipeline, the construction industry’s prospects appear positive, provided the required conditions are in place to facilitate this growth. Critical to advancing these projects will be the availability of skilled construction workers and finance.

The construction scenario to 2020 setting out the value and volume of construction output by sector is contained in Tables 3.4 to 3.7 and is graphically illustrated in Figure 3.4.

FIGURE 3.4: PROJECTED CONSTRUCTION OUTPUT TO 2020



Source DKM.

3.5 REGIONAL CONSTRUCTION PROSPECTS

An official breakdown of construction output by region has not been produced since 2010. In regard to the three main sub-sectors of the industry:

- a) The volume of **residential construction** will be determined by the location of housing developments, which are expected to be predominantly in the main urban areas, notably the Greater Dublin Area, Cork and Galway. A review of the regional distribution of housebuilding over the past five years is provided in Table 3.3 and

shows that almost one-third of dwellings completed in the last five years were in the Greater Dublin Area.

TABLE 3.3: REGIONAL DISTRIBUTION OF HOUSEBUILDING IN FIVE YEARS 2011-2015

	2011-2015	% share
Dublin	10,356	20%
Mid-East	5,882	12%
Greater Dublin Area	11,238	32%
South-West	8,170	16%
Border	7,484	15%
South-East	5,931	12%
West	5,781	11%
Mid-West	4,023	8%
Midland	3,325	7%
Total	50,951	100%

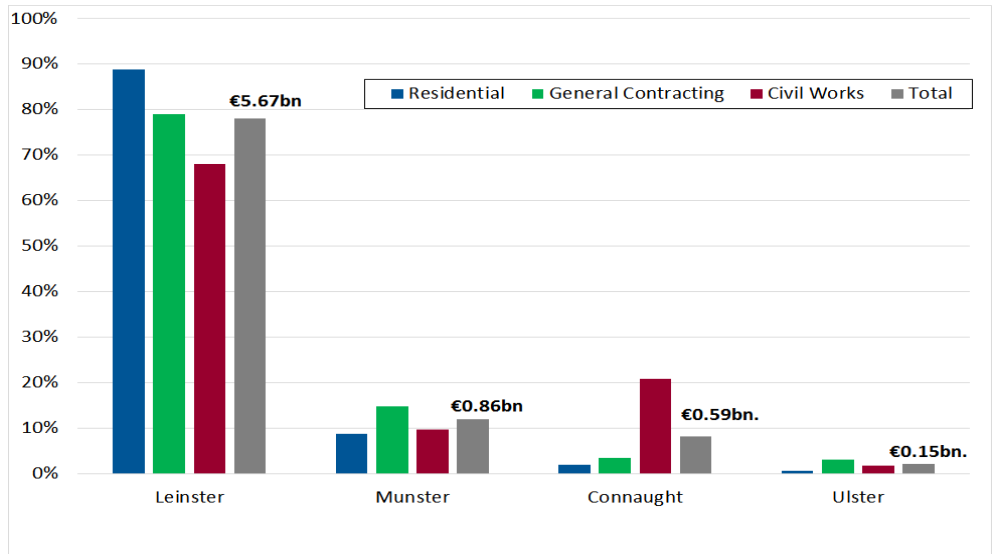
Source: www.environ.ie Based on completed units i.e. connected for electricity.

- b) The regional distribution of **private non-residential construction** is more difficult to ascertain but will be influenced by the regional distribution of FDI projects, including data centres. Elsewhere a substantial proportion of office, retail and hotel development is likely to be in the Dublin area, followed by Cork and Galway. In contrast, agricultural building investment is likely to be more rural based.
- c) The nature of **public sector building projects**, for example, schools, hospitals, garda stations, courthouses, libraries and local authority offices, is such that they tend to be located across regional locations. From a review of projects in the Capital Plan (Table 3.2), it is clear that many in the Public Transport and Healthcare sectors are planned for Dublin and other urban areas, whilst others, notably Energy Transmission, Roads, Housing, Education and Flood Relief are likely to be spread across the country.

There is concern, however, that the recovery in construction, like the economy, is not benefitting some parts of the country. In order to ascertain the regional composition of construction activity, an analysis has been conducted of the projects captured by Construction Information Services (CIS) in August this year. Based on CIS project information, which records construction activity across the three broad segments of the industry – residential, general contracting and civils - and across three stages – On Site, Contract Award and Tenders Sought – it is possible to estimate the composition of construction activity across the four provinces. The CIS report captures around €7.3 billion worth of projects on the whole island of Ireland, almost 90 per cent of which were on site in August 2016.

An assessment of the provincial breakdown of the total project value of €7.3 billion shows that Leinster accounted for 78 per cent of the total, while Munster, Connaught and Ulster represented 12, 8 and 2 per cent respectively (Figure 3.5). Looking at the composition by market segment, Leinster accounted for 89 per cent of residential projects, 79 per cent of general contracting projects and 68 per cent of civils works. Apart from the N17/N18 Gort to Tuam PPP project, which boosted the civils segment in Connaught, the volume of work recorded in all provinces, with the exception of Leinster, was comparatively modest.

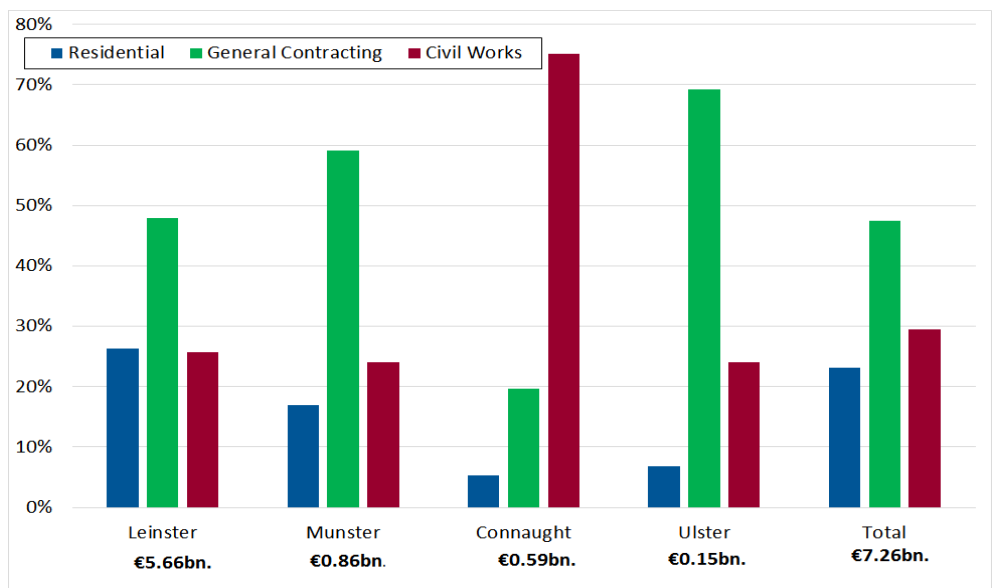
FIGURE 3.5: PROVINCIAL DISTRIBUTION OF TOTAL CONSTRUCTION PROJECTS ACROSS MARKET SEGMENTS



Source: Construction Information Services, 22 August 2016. Each market segment sums to 100%.

In a separate analysis of the breakdown of work in each province, according to the CIS data (Figure 3.6), general contracting had the highest share in each province, apart from civil works in Connaught, which accounted for 75 per cent of the Connaught total. This very high share again reflected the work underway on the N17/N18 Gort to Tuam PPP project. Almost 70 per cent of the works reported in Ulster were general contracting projects. In percentage terms, the value of residential projects was highest in Leinster (26% of total Leinster projects) followed by Munster (17% of Munster total). Although 79 per cent of all general contracting works were in Leinster, this market segment recorded the highest share in Ulster (69% of the Ulster total), followed by Munster (59% of the Munster total).

FIGURE 3.6: SECTORAL DISTRIBUTION OF TOTAL CONSTRUCTION PROJECTS ACROSS THE PROVINCES



Source: Construction Information Services, 22 August 2016. Each province sums to 100%.

Based on the sample of projects identified by CIS, Leinster dominates the value of works on site (77% of total); the value of contracts awarded (78% of total); and the value of tenders sought (90% of total). Although the report is a snapshot of the situation prevailing in August 2016, the analysis shows the dominance of Leinster in the overall market.

Given the uneven distribution of work, the demand for skills is expected to be a more prominent issue in Leinster. This trend, if it continues, will have implications for where workers live, where they work and travel to work commuting patterns, as some workers who live outside Leinster may have to commute to Leinster for employment. Anecdotally, this trend is already evident.

3.6 KEY RISKS

While the shape of Brexit is still unknown, reports on the specific impacts have been mixed. With regard to the availability of finance, there is the risk that less investment will be forthcoming from UK investment companies and financial institutions as a result of Brexit, and any finance made available from UK sources could be very costly. This could jeopardise housing and non-residential development projects relying on non-domestic sources of finance.

However, the impact of the weaker sterling euro exchange rate should give rise to lower prices for imported building materials, unless tariffs and restrictions are imposed in a post-Brexit regime.

Other downside **risks** to the scenario presented include:

- Delays in delivering the policy targets and investment provisions in the Capital Plan and the Action Plan for Housing and Homelessness;
- Failure of the supply side of the industry to scale up adequately to deliver the projected output level, particularly with regard to skills;
- The return of tender price inflation as the industry expands again over the coming years, and labour, materials and land costs come under pressure or become more difficult to source; and
- A general lack of finance for funding private sector projects.

Notwithstanding the uncertainty over Brexit, there is a substantial volume of work planned by the commercial and industrial sectors in response to the economic recovery and the growth in population. There is also considerable pent-up demand for housing which, if delivered, could see the level of housebuilding by 2020 returning to more normal levels. **The industry is in recovery phase and is on course to experience the most positive outlook for construction in a decade, provided it has the skills available to meet the demands on the industry.**

TABLE 3.4: VALUE OF CONSTRUCTION OUTPUT IN CURRENT PRICES (€MILLION)

	2012	2013	2014	2015	2016E
Completions (Electricity connections)	8,488	8,301	11,016	12,666	14,000
Commencements (incl. social housing)	5,058	5,212	7,717	8,088	12,000
New Housing	1,980	1,946	2,726	3,332	3,961
Housing RM&I	2,461	2,500	2,630	2,860	3,148
All housing	4,441	4,446	5,356	6,192	7,108
Total Private Non-residential NEW	960	1,290	1,357	1,675	2,382
Total Private Non-residential RM&I	74	79	84	94	104
Total Private Non-residential	1,034	1,369	1,441	1,769	2,486
Total Social Infrastructure NEW	852	949	1,079	1,143	1,278
Total Social Infrastructure RM&I	248	264	285	316	351
Total Social Infrastructure	1,099	1,213	1,364	1,459	1,629
Total Building NEW	3,792	4,185	5,163	6,150	7,621
Total Building RM&I	2,782	2,843	2,999	3,270	3,603
Total All Building	6,574	7,028	8,162	9,420	11,224
Total Civil Engineering NEW	2,243	2,221	2,471	2,642	3,074
Total Civil Engineering RM&I	579	474	515	588	637
Total Civil Engineering	2,822	2,695	2,986	3,230	3,710
Total Construction Output	9,395	9,723	11,147	12,650	14,935
Total GNP (current prices)	142,203	151,899	163,445	202,642	215,143
Construction as % of GNP	6.6%	6.4%	6.8%	6.2%	6.9%

TABLE 3.5: VALUE OF CONSTRUCTION OUTPUT IN CONSTANT 2015 PRICES (€MILLION)

	2012	2013	2014	2015	2016E
	2,337	2,231	2,956	3,332	3,772
Housing RM&I	2,663	2,678	2,735	2,860	3,027
All housing	4,999	4,909	5,691	6,192	6,799
Total Private Non-residential NEW	1,089	1,422	1,424	1,675	2,249
Total Private Non-residential RM&I	81	85	88	94	99
Total Private Non-residential	1,170	1,507	1,512	1,769	2,348
Total Social Infrastructure NEW	967	1,046	1,133	1,143	1,206
Total Social Infrastructure RM&I	274	287	297	316	335
Total Social Infrastructure	1,242	1,333	1,430	1,459	1,540
Total Building NEW	4,393	4,699	5,513	6,150	7,227
Total Building RM&I	3,019	3,051	3,121	3,270	3,461
Total All Building	7,412	7,749	8,634	9,420	10,687
Total Civil Engineering NEW	2,500	2,414	2,582	2,642	2,927
Total Civil Engineering RM&I	641	515	538	588	611
Total Civil Engineering	3,141	2,929	3,120	3,230	3,539
Total Construction Output	10,553	10,679	11,754	12,650	14,226

TABLE 3.6: PERCENTAGE CHANGE IN VOLUME OF CONSTRUCTION OUTPUT

	2012	2013	2014	2015	2016E
New Housing	-19.7%	-4.5%	32.5%	12.7%	13.2%
Housing RM&I	-23.2%	0.6%	2.1%	4.5%	5.8%
All Housing	-21.6%	-1.8%	15.9%	8.8%	9.8%
Total Private Non-res. NEW	14.7%	30.6%	0.2%	17.6%	34.3%
Total Private Non-res. RM&I	-19.1%	4.7%	3.5%	6.3%	5.8%
Total Private Non-residential	11.5%	28.8%	0.4%	17.0%	32.7%
Total Social Infrastructure NEW	-20.4%	8.1%	8.3%	0.9%	5.5%
Total Social Infrastructure RM&I	-0.2%	4.7%	3.5%	6.3%	5.8%
Total Social Infrastructure	-16.6%	7.4%	7.3%	2.0%	5.5%
Total Building NEW	-13.4%	7.0%	17.3%	11.6%	17.5%
Total Building RM&I	-21.5%	1.1%	2.3%	4.8%	5.8%
Total All Building	-16.9%	4.6%	11.4%	9.1%	13.5%
Total Civil Engineering NEW	-12.9%	-3.4%	7.0%	2.3%	10.8%
Total Civil Engineering RM&I	-24.1%	-19.6%	4.4%	9.2%	4.0%
Total Civil Engineering	-15.4%	-6.7%	6.5%	3.5%	9.6%
Total Construction Output	-16.5%	1.2%	10.1%	7.6%	12.5%

TABLE 3.7: MEDIUM-TERM PROJECTIONS FOR CONSTRUCTION OUTPUT TO 2020

Constant 2015 Prices €m.	2016E	2017	2018	2019	2020
All Housing	6,799	7,509	8,622	10,175	12,087
Total Private Non-residential	2,348	2,649	2,643	2,532	2,532
Total Social Infrastructure	1,540	1,742	1,734	1,859	1,918
Total All Building	10,687	11,901	12,999	14,566	16,537
Total Civil Engineering	3,539	3,530	3,522	3,480	3,643
Total Construction Output	14,226	15,431	16,522	18,047	20,179
Total Construction Output (current prices)	14,935	17,172	19,581	22,886	27,381
Construction as % of GNP	6.9%	7.5%	8.1%	9.0%	10.3%
	2016E	2017	2018	2019	2020
Projected Percentage Change in Volume of Construction Output					
All Housing	9.8%	10.5%	14.8%	18.0%	18.8%
Total Private Non-residential	32.7%	12.8%	-0.2%	-4.2%	0.0%
Total Social Infrastructure	5.5%	13.1%	-0.5%	7.2%	3.1%
Total All Building	13.5%	11.4%	9.2%	12.1%	13.5%
Total Civil Engineering	9.6%	-0.2%	-0.2%	-1.2%	4.7%
Total Construction Output	12.5%	8.5%	7.1%	9.2%	11.8%

4 CONSTRUCTION ENTERPRISES AND EMPLOYMENT

This section presents an analysis of active enterprises and employment in the construction sector and examines the composition of construction employment. It also presents data on construction related occupations across the economy as a whole together with details on the number of skilled qualified craftspersons and apprenticeships. The number of self-employed with construction related occupations across the economy is also shown. The data is provided from a range of CSO surveys using different methodologies and thus one should exercise caution when making comparisons with the different datasets.

4.1 ENTERPRISE PROFILE

According to CSO Business Demography Statistics²⁸ the construction industry comprised approximately 47,349 enterprises in 2014. Trends in the data indicate that the number of enterprises in the sector decreased by approximately 23 per cent over the six year period to 2014. Enterprises cover many business entities, including limited companies, sole traders and partnerships. The Eurostat definition states that an enterprise is active if "in a certain period if it generates turnover, employs staff or makes investments in the period".²⁹ Thus all active construction enterprises in the year are included.

TABLE 4.1: NUMBER OF ACTIVE ENTERPRISES IN CONSTRUCTION SECTOR 2008-2014

	2008	2009	2010	2011	2012	2013	2014
No. of Active Enterprises	61,765	57,472	52,607	50,256	49,530	48,502	47,349
% Change Active Enterprises		-6.9%	-8.5%	-4.5%	-1.4%	-2.1%	-2.4%

Source: CSO Business Demography.

The geographical spread of the construction sector has been impacted by the downturn as rural areas have experienced a greater fall in the number of active construction enterprises. Figure 4.1 shows the number of enterprises registered in the various counties of Ireland in 2008 and 2014.³⁰ As can be seen, there has been a marked decline in the number of enterprises operating across the country. The greatest decline in active enterprises occurred in Donegal (-35.6%), Monaghan (-30.9%) and Offaly (-29.3%).

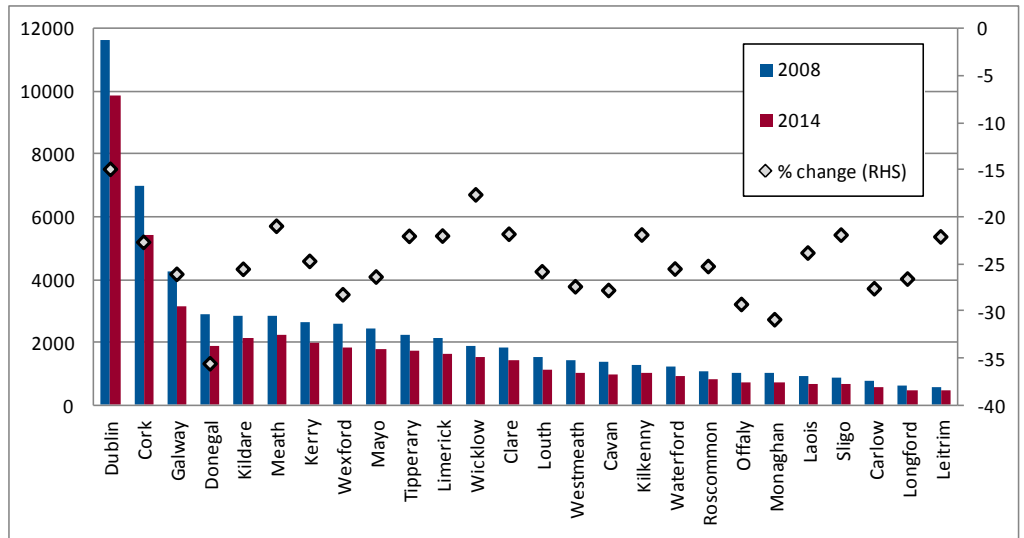
²⁸ The data from Business Demography comes from the CSO's Central Business Register. This register contains the active population of enterprises and is updated principally using administrative data from the Revenue Commissioners. This information is, in turn, supplemented by information received from the Companies Registration Office and from updates received as part of the surveying of enterprises.

²⁹

<http://www.cso.ie/en/surveysandmethodology/multisectoral/businessdemography/backgroundnotes/>

³⁰ The geographical breakdown given is an approximation. The county breakdown is based on the address at which an enterprise is registered for Revenue purposes, rather than where the business actually operates from, because no comprehensive administrative source is currently available for business locations.

FIGURE 4.1: ACTIVE CONSTRUCTION ENTERPRISES BY COUNTY IN 2008 AND 2014



Source: CSO Business Demography.

4.1.1 Size Structure of the Construction Sector

98 per cent of all construction enterprises employ less than 10 employees

The structural composition of construction enterprises has remained substantially unchanged in the past number of years despite the recession. The size structure of active enterprises, as defined by the number of persons engaged, is outlined in Table 4.2 below.

The industry has traditionally been a very fragmented sector, with the vast majority (c. 70%) of firms in the category self-employed with no employees. Another almost one-quarter employ 1 to 4 employees with around 98 per cent of all enterprises employing less than 10 employees. There has been a consistent pattern of decline in the numbers of enterprises across all size classes over the period 2008-2012, with the greatest decline of almost two-thirds recorded by medium-sized firms employing 50 to 249 persons. Firms employing 10 to 19 persons declined by close to 60 per cent over the six years. The number of active enterprises in all class sizes, excluding firms with less than 10 employees, recorded a return to growth in 2013.

As a result of the decline in larger enterprises over time, the proportion of smaller enterprises has increased. In 2008, approximately 95 per cent of enterprises had less than 10 employees. This proportion peaked in 2012 at 98 per cent and was 97.5 per cent by 2014.

The increasing trend in the proportion of small enterprises reflects the restructuring and fragmentation which has taken place within the sector, as medium to large companies downsized and small new enterprises with few employees emerged. Table 4.3 illustrates the number of new enterprises established over the 2006-2010 period alongside the average number of persons engaged and employed in new enterprises. The number of new enterprises established on an annual basis averaged 2,800 over the period 2008 to 2013. In 2014, some 43 per cent more firms were established compared to 2013.

TABLE 4.2: ACTIVE CONSTRUCTION ENTERPRISES BY SIZE CLASS (EMPLOYEES AND PERSONS ENGAGED)

	2008	2009	2010	2011	2012	2013	2014	% change 08-'14
Active Enterprises by Employee Size Classes								
0	34,108	37,456	36,299	35,202	35,514	34,732	32,658	-4%
1-4	20,624	15,494	13,042	12,167	11,464	11,096	11,621	-44%
5-9	4,267	2,806	2,059	1,846	1,652	1,695	1,924	-55%
10 or more	2,766	1,716	1,207	1,041	900	979	1,146	-59%
All size classes	61,765	57,472	52,607	50,256	49,530	48,502	47,349	-23%
Active Enterprises by Persons Engaged Size Classes								
Under 10	58,936	55,722	51,380	49,202	48,541	47,397	46,180	-22%
10 - 19	1,823	1,100	809	724	594	648	731	-60%
20 - 49	721	487	319	251	253	276	333	-54%
50 - 249	259	147	88	70	56	66	89	-66%
250 and over	26	16	11	9	9	9	16	-39%
Total Persons Engaged	61,765	57,472	52,607	50,256	49,453	48,396	47,349	-23%

Source: CSO Business Demography.

Note:

Persons Engaged includes employees, proprietors and family members. Persons engaged are the sum of Employees plus Working Proprietors.

Employees are persons who are paid a fixed wage or salary. Employees are calculated using an annual employment return received from Revenue.

Furthermore, it is evident that the numbers engaged and employed in new enterprises are low and have fallen over time up to 2014. This is particularly evident in 2008 and 2009 when the average number of persons engaged fell from 1.2 in 2008 to 0.8 in 2009. Since 2009 both the average number of persons engaged and the number of employees has remained broadly stable. This trend likely reflects the fact that new enterprises are largely individually owned and operated.

TABLE 4.3: NEW CONSTRUCTION ENTERPRISES 2006-2010

	2008	2009	2010	2011	2012	2013	2014
No. of New Enterprises	3,431	3,572	2,467	2,589	2,757	2,473	3,526
(%) Change New Enterprises		4.1	-30.9	4.9	6.5	-10.3	42.6
Number of Persons Engaged (average)	1.2	0.8	1.0	1.0	1.0	1.0	1.0
Number of Employees (average)	0.5	0.2	0.2	0.2	0.2	0.3	0.2

Source: CSO Business Demography.

Looking at the survival rate of new enterprises, only 60 per cent of new construction enterprises established in 2008 survived the five years to 2013. That being said, of the 3,526 enterprises established in 2013 only 58 per cent of them survived the year to 2014. These trends indicate that, although aspects of the sector have undoubtedly improved in recent years, certain challenges still remain.

TABLE 4.4: SURVIVAL RATES OF NEW CONSTRUCTION ENTERPRISES

	New Enterprises	No. Surviving in 2014	(%) Surviving in 2014
2008	3,431	2,046*	60
2009	3,572	2,119	59
2010	2,467	1,719	70
2011	2,589	1,947	75
2012	2,757	2,112	77
2013	3,526	2,061	58

Source: CSO Business Demography.

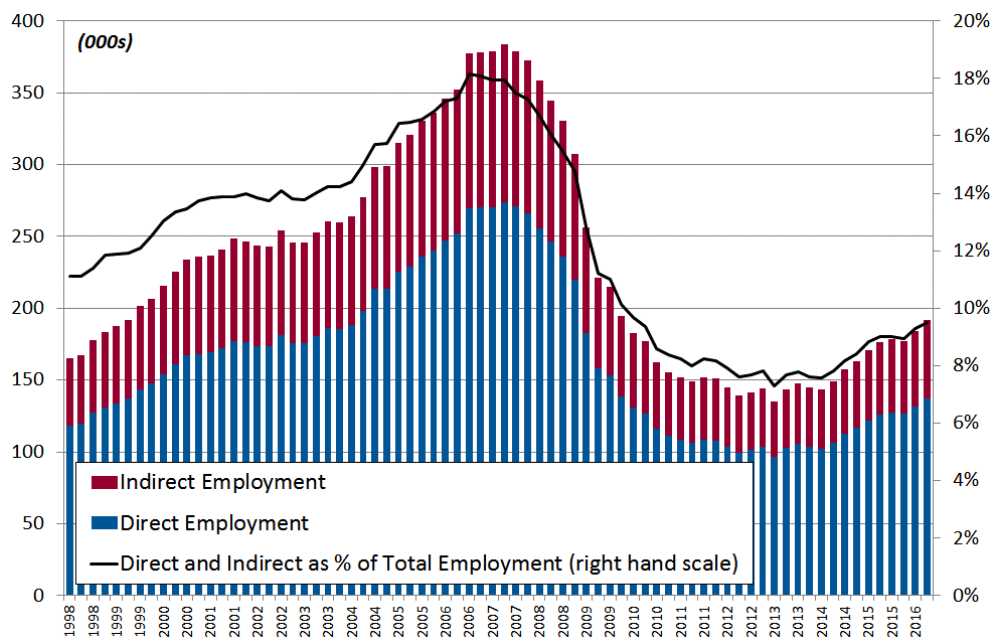
*Number of new enterprises in 2008 surviving in 2013.

4.2 TRENDS IN CONSTRUCTION EMPLOYMENT

By Q2 2016, there were an additional 175,600 persons at work in Ireland since the first Action Plan in Q1 2012. This exceeded the original target of 100,000 additional jobs by 2016. Although there has been substantial growth in most economic sectors, the strongest employment growth has come in the area of construction where the number employed is up by around 37 per cent since Q2 2012. The sector accounted for around 20 per cent of the total increase in employment in the four year period.

In any discussion regarding the prospects of the sector it is worth revisiting the trends in employment over recent years. The QNHS has been reporting quarterly data on direct employment in the construction sector since 1998. As mentioned in the previous section, direct employment in construction now stands at 136,900 and represents roughly 6.8 per cent of the total employed workforce. At the peak of the construction boom (Q1 2007), a total of 273,900 were employed directly in the sector representing almost 13 per cent of total employment across the economy.

FIGURE 4.2: TOTAL DIRECT AND INDIRECT EMPLOYMENT IN CONSTRUCTION 1998 - 2016



SOURCE: CSO

When persons indirectly employed in those firms and services supplying the construction sector are included (estimated at 40 per cent of direct employment), the total number of persons employed was 191,700 or 9.5 per cent of the total workforce. This figure reached close to 385,000 or just below one in five persons working in the economy at the peak.

While it may be unfair to make comparisons with an exceptional period of growth in the Irish economy the figures highlight the dramatic boom, bust and subsequent pick up in employment in the construction sector. From Figure 4.2 it is clear that the sector has been experiencing positive annual growth since Q1 2013. It is also clear that this recovery is coming off a very low base, even when compared to employment in the sector in the late 1990s. In the five year period between Q4 2007 and Q2 2013 employment in the construction sector experienced, on average, negative growth rates of almost 16 per cent annually. At its lowest point in Q1 2013, the sector had lost almost 65 per cent of those who had been employed at the peak of the boom.

Employment in the construction sector is now beginning to show strong signs of recovery following the construction crisis post 2008. The most recent Quarterly National Household Survey (QNHS) from the CSO reports construction as one of two sectors that registered the strongest annual growth in Q2 2016. Annual growth of 8.7 per cent in Q2 2016 followed growth of 7.8 and 8.5 per cent in the preceding two quarters.

4.3 THE COMPOSITION OF CONSTRUCTION EMPLOYMENT

There are three broad groups within the area of construction, which are defined according to NACE Rev.2:

1. The construction of buildings, which includes residential buildings, non-residential buildings and construction works for residential and non-residential buildings.
2. Civil engineering, which incorporates construction works for roads and railways; utility projects and; works for other civil engineering projects.
3. Specialised construction works, which includes demolition and site preparation works; electrical, plumbing and other installation works and; building completion and finishing works.

Of the three broad groups within the sector the majority of employment falls into construction of buildings and specialised construction activities. As of Q4 2015 some 120,000 of the total of 126,600 people were employed in these two sub-sectors. Demand from these particular groups is likely to increase as the supply of housing increases in the coming years.

4.4 CONSTRUCTION RELATED OCCUPATIONS IN WHOLE ECONOMY

Data is available from the QNHS which identifies numbers in construction related occupations across the whole economy. In doing so it is possible to identify employment growth trends in the various skilled construction and building trades. Based on data provided by the SLMRU in Solas a breakdown by occupational group is shown in Table 4.5. As the figures are taken from the national breakdown of occupations but relate to occupations that are predominantly associated with the construction sector, some persons may work outside construction. Thus of the total of 162,800 persons with a construction related occupation in 2015, some 126,600 persons worked in the construction sector.

The concern over skills shortages in the industry seems valid, given trends in the number of qualified Skilled Craftspersons which almost halved between 2007 and 2010 and continued falling in 2011, having recovered only marginally since (+9,200).

Over the period 2007 to 2015, Apprentices were the only group to experience sustained negative growth over six consecutive years. Employment growth of 20 and 22.2 per cent respectively returned to this group in the final two years of the period, however it is evident that the number of apprentices in the economy today is substantially below its 2007 level.

The consistent decline in the number of Managers and Professionals between 2008 and 2013, equivalent to 7,200 in total, reflects a decline of just 1,100 in the number of civil engineers and a decline of 5,700 in all other professions, with Managers accounting for the remainder.³¹ A worrying trend is that the number of Managers and Professionals had recovered in 2014 but declined again in 2015.

The occupational group Labourers also experienced substantial losses at the onset of the crisis. There were over 53,000 less labourers working in 2015 compared with the corresponding figure in 2007. It is worth noting that while the extent of these losses occurred in 2009 and 2010, with declines of 20.2 and 44.3 per cent respectively, this group continued declining in 2015 with the total number employed down to 25,500 from 38,000 in 2014.

TABLE 4.5: CONSTRUCTION RELATED OCCUPATIONS IN WHOLE ECONOMY - SUMMARY (Q4 EACH YEAR)

OCCUPATION	2007	2008	2009	2010	2011	2012	2013	2014	2015
Skilled Craftspersons (1)	144,700	121,400	78,400	66,500	60,100	58,500	58,100	61,800	68,200
<i>of which</i>									
- Qualified Skilled Craftsperson:	121,000	103,200	67,200	59,400	54,600	54,900	55,200	58,200	63,800
- Apprentices	23,700	18,300	11,300	7,000	5,500	3,600	3,000	3,600	4,400
Managers & Professionals	24,200	24,300	19,400	18,700	18,200	17,900	17,100	20,400	19,700
Technicians	4,000	4,300	3,300	3,000	3,300	3,000	3,600	3,100	4,300
Operatives	35,200	28,300	19,100	20,800	22,200	19,700	18,800	20,900	23,800
Labourers	78,600	65,300	52,100	29,000	24,900	32,200	32,900	38,000	25,500
Other Construction Trades (2)	43,000	37,500	25,500	19,800	18,200	16,400	19,200	18,800	21,400
Total (000s)	329.7	281.2	197.9	157.5	146.9	147.7	149.6	163.1	162.8
Total Construction Employment (000s)	266.2	219.7	138.9	111.0	107.8	103.2	103.6	116.7	126.6
Total Employment Nationally (000s)	2,156.0	2,083.5	1,921.4	1,857.3	1,847.7	1,848.9	1,909.8	1,938.9	1,983.0

Source: Solas, Skills and Labour Market Research Unit (SLMRU) analysis of Quarterly National Household Survey (QNHS), Central Statistics Office (CSO). Employment figures have been rounded to the nearest 100.

Apprentice figures are annual figures (the live population at the end of each year over the period 2007 to 2015). Source: Solas Apprenticeship Services.

Note 1: The skilled craftspersons occupational group only includes the number of metal working production and maintenance fitters employed in the construction sector – an estimate for the number of construction plant fitters. There are a large number of persons employed as fitters who work in sectors other than construction.

Note 2: Other Construction Trades include pipe fitters, steel erectors, roofers, roof tilers and slaters, glaziers, window fabricators and fitters, construction and building trades' supervisors and construction and building trades not elsewhere classified.

³¹ Other professions include Architects, Town Planners, Chartered and Quantity Surveyors and Construction Project Managers. A breakdown of the 5,700 is not provided.

The losses incurred in the occupational groups of qualified Skilled Craftspersons and Apprentices between the peak and the final quarter of 2015 (-47.3% and -81.4% respectively) warrants closer inspection.

Table 4.6 provides a more detailed breakdown for the occupational group Skilled Craftspersons between qualified and apprentices. The total persons in this combined category in the whole economy was 68,200 in 2015, down from 144,700 in 2007. The numbers of apprentices at the height of the boom was 23,700 but had fallen to 3,000 by 2013, before recovering modestly (+1,400) over the subsequent two years.

TABLE 4.6: CONSTRUCTION RELATED SKILLED CRAFTSPERSONS ACROSS WHOLE ECONOMY

OCCUPATION	Employment 2007 Q4	Employment 2015 Q4	% Change
Skilled Craftspersons			
Electricians and Electrical Fitters	29,100	17,300	-40.6%
of which Apprentices	7,880	2,491	-68.4%
Qualified Craft Electricians	21,200	14,800	-30.2%
Bricklayers and Masons	13,000	3,900	-70.0%
of which Apprentices	1,635	54	-96.7%
Qualified Bricklayers and Masons	11,400	3,800	-66.7%
Plumbers, Heating and Ventilating Engineers	17,100	8,700	-49.1%
of which Apprentices	4,842	798	-83.5%
Qualified Plumbers	12,300	7,900	-35.8%
Carpenters and Joiners	42,500	18,300	-56.9%
of which Apprentices	6,815	657	-90.4%
Qualified Carpenters and Joiners	35,700	17,600	-50.7%
Plasterers, Floorers and Wall Tilers	22,400	6,100	-72.8%
of which Apprentices	999	35	-96.5%
Qualified Plasterers, Floorers and Wall Tilers	21,400	6,000	-72.0%
Painters and Decorators	11,500	7,800	-32.2%
of which Apprentices	440	40	-90.9%
Qualified Painters and Decorators	11,100	7,700	-30.6%
Construction Plant Fitters and others *	9,100	6,200	-31.9%
of which Apprentices	1,051	288	-72.6%
Qualified Craftspersons	8,100	5,900	-27.2%
Total Skilled Craftspersons	144,700	68,200	-52.9%
<i>of which</i>			
Total Qualified Craftspersons	121,000	63,800	-47.3%
Total Apprentices	23,700	4,400	-81.4%
Total Construction Employment (000s)	266.2	126.6	-52.4%
Total Employment Nationally (000s)	2,156.00	1,983.00	-8.0%

Source: Solas, Skills and Labour Market Research Unit (SLMRU) analysis of the Quarterly National Household Survey (QNHS), Central Statistics Office (CSO). As employment figures have been rounded to the nearest 100, figures may not sum due to rounding.

* The number of fitters employed refers to only those employed in the construction sector (an estimate for the number of construction plant fitters).

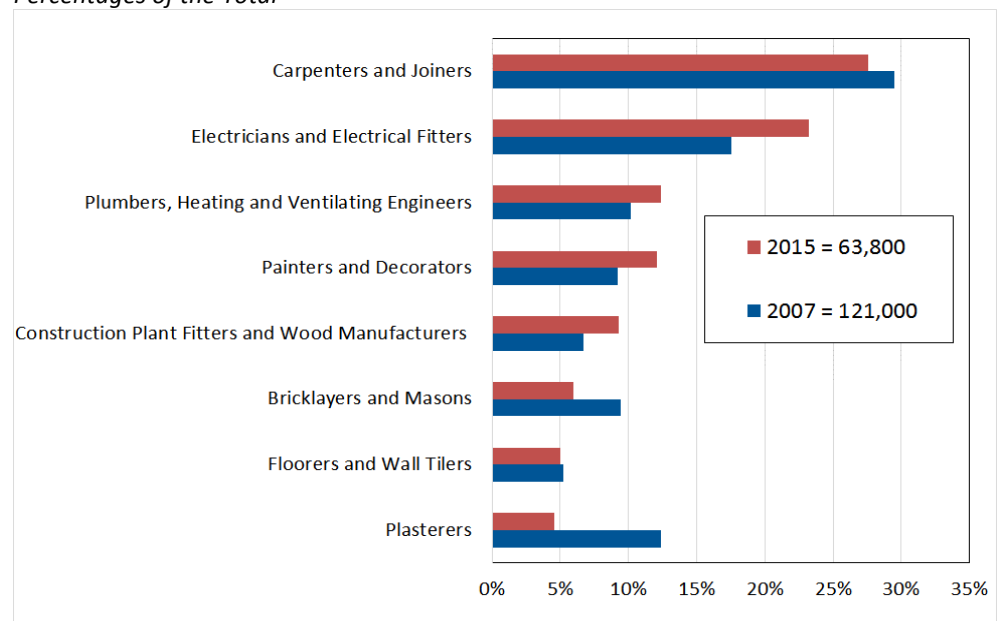
The largest reductions across the qualified occupational groups are recorded for Qualified Plasterers, Floorers and Wall Tilers (-72%) and Qualified Bricklayers and Masons (-66.7%). The numbers participating in Apprenticeships also sheds light on the fragility of the construction sector over the recessionary period. As of Q4 2015, Solas estimates there were some 4,400 apprentices across all trades in construction. While this represents an annual growth rate of 22.2 per cent in the 12 months since Q4 2014, it also compares to 23,700 Apprentices in Q4 2007. With the exception of electricians, every apprentice trade experienced losses greater than 70 per cent between the height of the construction boom and the end of 2015. This possibly reflects the fact that a high proportion of electricians also work in the Manufacturing and the Information and Communications sectors.

Figure 4.3 shows the distribution of the 63,800 qualified skilled occupations across the whole economy in Q4, 2015, based on the data that is available. There would be other trades, such as steel erectors, roofers, roof tilers and slaters, glaziers, window fabricators and fitters for which the numbers are not reported as employment was less than 3,000 in Q4, 2015. The main trends are as follows:

- The largest number of qualified craft persons in Q4 2015 was Carpenters and Joiners – 27.6 per cent of the total – following a decline of 50.7 per cent over the eight year period.
- The number of qualified Electricians declined by 30.2 per cent over the period to 14,800 in Q4 2015, but were up from a low of 12,000 in Q4 2014.
- The most significant decline was recorded for qualified Plasterers at almost 81 per cent, with just 2,900 employed in Q4 2015.
- The next biggest decline was recorded by qualified Bricklayers and Masons, a group in which numbers declined by 66.7 per cent to 3,800.

FIGURE 4.3: DISTRIBUTION OF THE TOTAL QUALIFIED SKILLED CRAFTSPERSONS IN THE ECONOMY IN 2007 AND 2015 (Q4 DATA)

Percentages of the Total

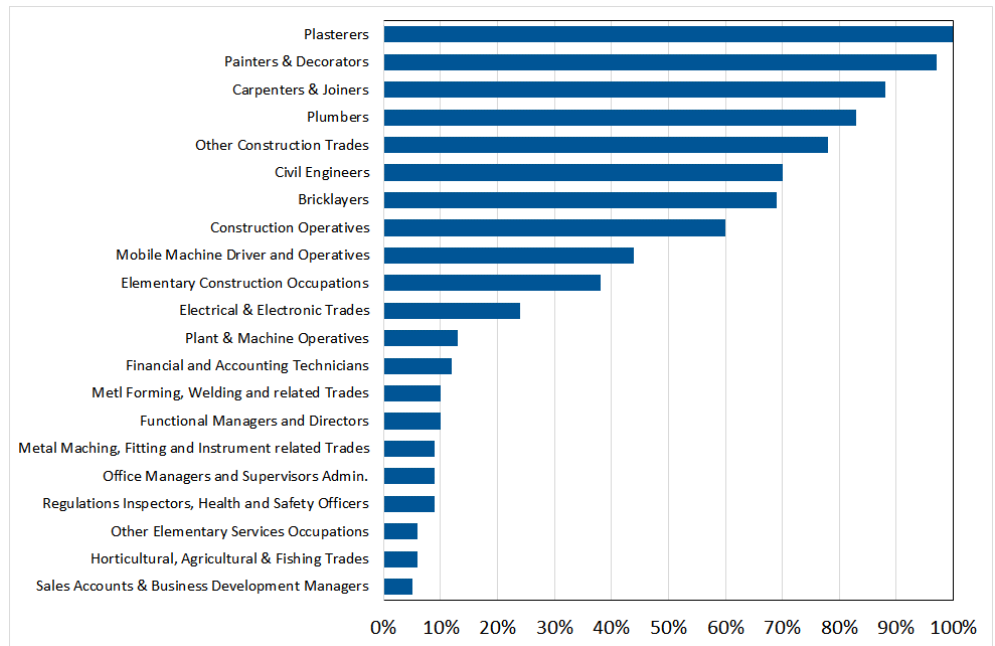


Source: CSO/SLMRU Solas.

Occupational shares in construction

As mentioned, the occupational data reported relates to the economy as a whole. In an alternative presentation of the data, the National Skills Bulletin for 2015 includes an interesting analysis of the employment distribution of occupations by sector. Figure 4.4 illustrates the occupational shares which are allocated to construction. The data shows that not all construction related occupations work in construction. For each occupation, it provides a split of the sectoral composition of all workers. Thus for Civil Engineers, for example, the data show that only 7 per cent work in construction while 63 per cent work in Professional, Scientific and Technical Activities. A further 24 per cent of civil engineers work in Public Administration and Defence. This give a total of 94 per cent, the balance are working across the remaining sectors in the economy. The data only discloses when the sectoral shares are above 5 per cent. It is also evident that many of the occupations under skilled craftspersons work in the Manufacturing (e.g. 63% of Metal Forming, Welding and related trades, 22% of Mobile Machine Drivers and Operatives and 19% of Electricians) and Information and Communications sectors (e.g. 21% of Electricians).

FIGURE 4.4: EMPLOYMENT DISTRIBUTION OF OCCUPATIONS IN THE CONSTRUCTION SECTOR, 2014



Source: National Skills Bulletin 2015, SLMRU.

Note: The chart provides the shares in construction by each occupation; hence the total in the chart does not sum to 100% as other sectors in the economy are not included.

In the exceptional case of Civil Engineers, the 70% figure includes the 63% working in Professional, Scientific and Technical Activities.

4.5 INTAKE OF APPRENTICES

The economic recession impacted significantly on the apprenticeship programme. Table 4.7 shows the historical trend in new apprenticeship registrations since 2003. The level of new registrations declined at an unprecedented rate from a peak of almost 7,000 in the period 2004-2006 to a low of 645 in 2010. The level has only picked up marginally since then and reached 1,715 in 2015. More recent year-to-date figures (Table 4.8) show new registrations totalled 1,465 in the first nine months of this year – compared to 1,180 and 995 in the same period in 2015 and 2014 respectively. Based on the numbers for the first nine months, it is likely that intake by the end of 2016 will surpass 2015 levels.

TABLE 4.7: NUMBER OF SOLAS APPRENTICE REGISTRATIONS OF NEW RECRUITS ON CONSTRUCTION COURSES 2003-2015

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Bricklayer	550	680	600	475	245	55	20	10	10	5	5	20	25
Carpentry and Joinery	1,850	2,090	2,125	1,905	1,350	510	140	95	70	90	100	185	290
Construction plant fitter	85	100	105	90	95	65	25	30	30	45	55	55	75
Electrical	1,765	2,030	2,160	2,270	2,055	1,105	525	375	355	395	520	845	955
Floor and Wall Tiler	35	35	40	30	45	10	5	5	0	0	0	0	0
Painting and Decorating	140	155	150	160	110	60	20	10	20	10	10	10	20
Plastering	270	310	280	220	145	55	15	10	5	5	10	10	5
Plumbing	940	1,250	1,250	1,500	1,040	455	125	90	145	95	240	320	290
Cabinet Making	215	195	180	205	155	75	20	10	5	0	0	0	0
Wood Machinists	15	25	15	15	15	5	5	0	0	0	0	0	0
Wood Manufacturing and Finishing	0	0	0	0	0	0	0	15	10	10	20	25	50
Total	5,865	6,870	6,900	6,870	5,250	2,400	895	645	650	665	955	1,465	1,715

Source: Solas. All figures have been rounded to nearest 5.

TABLE 4.8: NUMBER OF SOLAS APPRENTICE REGISTRATIONS ON CONSTRUCTION COURSES

(January to September figures)

	Sept-14	Sept-15	Sept-16
Electrical	565	670	820
Carpentry & Joinery	110	200	265
Plumbing	235	190	225
Wood Manufacturing & Finishing	10	30	50
Brick & Stonelaying	15	20	40
Construction Plant Fitting	50	55	35
Painting & Decorating	5	10	15
Plastering	5	5	15
Floor & Wall Tiling	0	0	0
Total	995	1,180	1,465

Source: Solas. All figures have been rounded to nearest 5.

4.6 SELF-EMPLOYMENT IN CONSTRUCTION

A significant change within the industry over the past two decades has been the shift from direct employment to self-employment and sub-contracting. With less direct employees as tradespersons, firms are less inclined to take on apprentices, resulting in a lack of training opportunities for new entrants.

In a final breakdown, details on the division between those in the sector who are self-employed and employees is provided. At the onset of the crisis the number employed as employees decreased at a faster rate than those self-employed. For example, between 2007 and 2015 there was a 57.6 per cent drop in the number of employees in the construction sector while the numbers of self-employed declined by 39.3 per cent in the same period.

There was a noticeable increase in the share of self-employment over the period with the total share increasing from 28.3 per cent in 2007 to 36 per cent in 2015.

While it may not be prudent to compare with the numbers employed at the peak of the last construction boom in 2007, it is clear that with the emergence of recovery in construction since 2013, the numbers are well below what is likely to be a sustainable employment level.

TABLE 4.9: EMPLOYMENT STATUS - SELF-EMPLOYED AND EMPLOYEES IN CONSTRUCTION 2007 AND 2015 (Q4 DATA)

Occupational Group	2007Q4			2015Q4		
	Self-employed	Employee	Total	Self-employed	Employee	Total
Construction related Managers, Professionals, Associate Professionals and Skilled Trades	43,300	84,300	127,500	26,400	30,000	56,400
Other Trades	17,800	19,100	36,800	8,900	6,300	15,200
Operatives and Labourers	6,600	53,800	60,400	3,600	19,300	22,900
All other occupations employed in the construction sector	7,600	33,800	41,400	6,700	25,400	32,100
Total construction employment	75,300	191,000	266,200	45,700	81,000	126,600
% Share of Total	28.3%	71.8%	100%	36.0%	64.0%	100%

Source: Solas, Skills and Labour Market Research Unit (SLMRU) analysis of CSO Quarterly National Household Survey (QNHS), Central Statistics Office (CSO).

Note on definitions:

1. Construction Managers, Professionals and Associate Professionals: Production Managers; Directors in construction; Civil Engineers; Architects; Town Planners; Quantity Surveyors; Chartered Surveyors; Construction Project Managers; Technicians; and Draughtspersons.

2. Skilled Trades: Electricians and Electrical Fitters; Plumbers and Heating and Ventilating Engineers; Carpenters and Joiners; Bricklayers and Masons; Plasterers; Flooring and Wall Tilers; Painters and Decorators; Furniture Makers and other craft woodworkers; and Metal Working Production and Maintenance Fitters.

3. Other Trades: Steel Erectors; Roofers, Roof Tilers and Slaters; Glaziers, Window Fabricators and Fitters; Construction and Building Trade Supervisors; Pipe Fitters; and Construction and Building Trades n.e.c. (not elsewhere classified).

4. Construction Operatives and labourers: Scaffolders, Stagers and Riggers; Road Construction Operatives; Construction Operatives n.e.c.; Crane Drivers; Fork-lift truck drivers; Mobile Machine Drivers and Operatives n.e.c.; Elementary Construction occupations.

Group 1 is included with Group 2 as the numbers in Group 1 are too small to report separately.

There were around 46,000 self-employed persons in the construction industry in 2015, which corresponds to 36 per cent of the total number working in the industry. This figure cannot be compared with the almost 33,000 active construction enterprises who had no employees in 2014 as they are based on different surveys, one based on administrative data received from Revenue on an annual basis and the other based on a quarterly household survey.

This leaves an estimated 81,000 employees in the construction industry. This figure will include employees working in the public and private sectors. The public sector will include construction workers in each of the above groups working in, for example, local authorities and across all Government departments. There is no published data on the number of construction workers in the public sector but there are 42,900 persons employed in the Civil Service and 32,600 in Regional bodies, including local authorities, giving a total of almost 75,500 or almost 4 per cent of the total employed workforce³². Assuming that around 10 to 20 per cent of this total work in construction related occupations, would imply an estimated 8,000 to 15,000 persons are in the public construction sector. On this basis the estimated number of persons working in the private construction sector is in the region of 66,000 to 73,000.

³²

<http://www.cso.ie/en/releasesandpublications/er/qnhs/quarterlynationalhouseholdsurveyquarter22016/>

4.7 CONCLUSIONS

Based on the analysis presented the following conclusions can be drawn.

The substantial contraction in construction output volumes since 2008 gave rise to a **reduction of around 23 per cent in the number of enterprises in the sector to 47,349 in 2014, representing a total loss of 14,500 firms**³³. This marked decline was evident across the country, but was most pronounced in Donegal (-35.6%), Monaghan (-30.9%) and Offaly (-29.3%).

The industry has traditionally been and remains a very fragmented sector, with the **vast majority (c. 70%) of firms represented by the self-employed with no employees**. Another almost one-quarter employ 1 to 4 employees with around 98 per cent of all enterprises employing less than 10 employees.

There were 136,900 persons directly employed in the construction sector in Q2 2016, 6.8 per cent of the total employed workforce. The severity of the construction recession post 2008 saw the numbers working in construction decline by almost 180,000 by Q1 2013 to just 35 per cent of the numbers employed at the peak (2007). Construction recorded the fastest rate of employment growth in the period since, gaining 39,200 jobs by Q2 2016. When persons indirectly employed in those firms and services supplying the construction sector are included, the total number of persons employed was 191,700 or 9.5 per cent of the total workforce in Q2 2016.

Across the economy as a whole there are **162,800 persons with construction related occupations**, almost 80 per cent of whom work in construction.

There were **63,800 qualified skilled craftspersons with construction related skills in the whole economy in 2015** compared with 121,000 in 2007, with only modest increases recorded in recent years.

A more granular analysis of qualified skilled craftspersons shows that the largest reductions across the qualified occupational groups are recorded for Qualified Plasterers, Floorers and Wall Tilers (-72%) and Qualified Bricklayers and Masons (-66.7%).

There were some **4,400 apprentices across all trades in construction in 2015** compared with 23,700 Apprentices in the State in Q4 2007. With the exception of Electricians, every apprentice trade experienced losses greater than 70 per cent between the height of the construction boom and the end of 2015.

The level of new apprenticeship registrations has declined at an unprecedented rate during the economic recession and has only picked up marginally since, with **1,465 new registrations in the nine months to September 2016**.

There were around **46,000 self-employed persons in the construction industry in 2015**, which corresponds to 36 per cent of the total number working in the industry. This figure cannot be compared with the almost 33,000 active construction enterprises who had no employees in 2014 as they are based on different surveys. This leaves an estimated **81,000 employees** of which it is estimated that in the region of 66,000 to 73,000 work in the private sector.

³³ Business Demography Statistics, CSO. Business Demography data is based on enterprises that are registered with the Revenue Commissioners.

Across all occupations in the construction sector it is clear that employment has been hard hit in the wake of the crisis. The supply of skills available has tightened considerably. The figures discussed in this section, however, do present a return to growth in employment in the sector, albeit from a very low base. The next section examines the future prospects for construction employment and the apprenticeship trades.

5 CONSTRUCTION EMPLOYMENT AND OCCUPATIONAL PROJECTIONS

A construction industry needs a continuous pipeline of construction projects if it is to make a real contribution to economic growth and return the sector to more sustainable levels. The industry's main contribution is reflected in the jobs generated directly in construction firms across the spectrum of occupations from managerial, professional, crafts/trades to unskilled occupations³⁴. Further jobs are generated by firms supplying inputs to construction projects and by their suppliers in turn, i.e. the indirect employment impacts. As all of those employed spend their wages and profits throughout the wider economy, generating consumer expenditure and further investment, additional jobs are created, i.e. the induced employment impacts.

The tight labour market which has emerged in recent years since the economic recovery is resulting in some employers already experiencing difficulty recruiting the skilled workers they need. This is particularly the case in those trades which experienced a sharp fall in demand during the financial crisis. According to the Vacancy Overview Report for 2015³⁵:

“When compared with previous years, the construction sector has experienced a noticeable increase in vacancy notifications, particularly for skilled tradespersons such as electricians and carpenters..... this is a sector that is showing considerable signs of growth, particularly in the area of skilled trades; all indicators, including the vacancy rate, recent job hires, and volume of vacancy notifications show upward trends for this sector; the transitions data indicates that a large share of persons entering this sector were previously unemployed.”

This section presents employment projections for the construction sector as a whole and for construction occupations to 2020, based on the construction output scenario presented in Section 3. Two steps are involved:

- The initial step is to take the construction output forecasts and apply labour intensity ratios to ascertain the total direct and indirect employment in each sub-sector of the industry.
- The second stage is to estimate the occupational breakdown of the aggregate direct construction employment figures, based on a forecasting model used by the Skills and Labour Market Research Unit (SLMRU) of Solas.

The following projections are estimates only and are very dependent on the assumptions made to ascertain the construction output scenario and the forecast occupational breakdown. They are intended to provide an indication of employment trends over the medium-term.

5.1 CONSTRUCTION EMPLOYMENT PROJECTIONS BY SUB-SECTOR

In order to ascertain the employment projections by sub-sector it is necessary to use assumptions for the labour intensity of construction projects. The value of construction

³⁴ The focus here is to ascertain the skills needs of the construction industry. While investment in infrastructure creates jobs during the construction phase, the primary reason for investing in publicly funded infrastructure is the rate of return on the investment delivered over the long term vis-à-vis other publicly funded programmes. Investing in infrastructure should only be prioritised where such investment adds to the long term productive potential of the economy and improves national competitiveness.

³⁵ Vacancy Overview Report 2015, Export Group on Future Skills Needs, June 2016, available at <https://www.djei.ie/en/Publications/Vacancy-Overview-2015.html>.

output derived in Section 3 includes the direct employment generated on-site during a construction project, but it also includes the indirect employment generated off-site in the firms providing inputs to the project and the employment generated in those firms who supply the firms providing the inputs and so on. These are sometimes called ‘second generation’ suppliers and include, for example, persons employed in concrete manufacturing, joinery workshops and steel fabrication.

Previous work undertaken by the Construction Industry Council (2009) estimated the labour intensities for a sample of construction projects as ranging between 8 and 13 direct and indirect full-time equivalent (FTE) jobs per million euro, depending on the type of construction project.³⁶ More recent work undertaken in a paper by the Department of Public Expenditure and Reform (DPER, 2015), estimated that approximately 12 direct and indirect FTE jobs were generated by public capital investment in the construction industry.³⁷ The DPER report lists other estimates which suggest, for example, the average labour intensity of transport projects undertaken by the National Transport Authority (NTA) is on average, just under 9 direct and indirect job years per €1 million of investment.³⁸ The NTA research found that the actual employment intensity of different transport projects varied around the average. Civil engineering projects are likely to be less labour intensive but more capital intensive compared to housing projects as they may involve substantial amounts of imported equipment. Thus the labour-intensity figures available are reasonably similar and are used for the purposes of this analysis. However reflecting the anticipated recovery in construction output in the medium-term, the expectation would be that a €1 million of investment would generate less jobs over time.

Applying estimated labour intensity factors to the value of construction output in the period 2017-2020 provides indicative estimates for the future level of direct and indirect construction employment.

Estimates of indirect employment in construction are typically estimated at 40 per cent of direct employment, implying that for every ten persons directly employed on a construction project, there are a further four ‘indirectly’ employed in supporting industries. Based on the most recent QNHS figures, there were 136,900 persons directly employed in construction in Q2 2016, which would imply a total of almost 192,000 direct and indirect jobs in construction. Thus, based on the methodology set out, and applying the labour intensity assumptions to the projections for construction output, direct employment in construction is expected to increase from 142,000 in 2017 to around 213,000 by 2020. This would generate direct and indirect employment combined of almost 300,000 by 2020 compared with 384,000 in 2007.

³⁶ Submission to the Government by Construction Industry Council: Jobs and Infrastructure – A Plan for National Recovery, March 2009.

³⁷ Public Capital Programme 2016-2021: Labour Intensity of Public Investment, Irish Government Economic and Evaluation Service, Department of Public Expenditure and Reform, December 2015.

³⁸ National Transport Authority, unpublished analysis.

TABLE 5.1: PROJECTIONS FOR TOTAL CONSTRUCTION EMPLOYMENT TO 2020

	2016*	2017	2018	2019	2020
Total Construction Output (Constant 2015 prices, €bn)	14.2	15.4	16.5	18.0	20.2
Total Construction Output (Current Prices, €bn)	14.9	17.2	19.6	22.9	27.4
Assumed Labour Intensity (average FTE per €1m)	13	12	11	11	11
Total Direct and Indirect Employment (000s)	192	199	219	247	298
Assume 40% is Indirect implies DIRECT =	137	142	156	176	213

Source: DKM estimates. *The 2016 figure is the QNHS Q2 2016 figure. FTE=Full-Time Equivalent.

Notes:

The current price figures for construction output assume tender price inflation at around 6-7 per cent per annum over the forecast period.

The QNHS records persons who worked for payment or profit in the week before the survey for one hour or more, while the labour intensities are based on FTEs. Thus one would expect the QNHS figure to be higher than the number of FTEs employed in the industry.

5.2 FORECAST FOR CONSTRUCTION OCCUPATIONS

The prospects for construction occupations over the medium-term are derived by the SLMRU using their manpower forecasting model. The methodology employed by Solas is as follows:

- The CSO microdata from the QNHS provides the occupational profile of construction employment. The year 2015 is the base year used – (Table 5.2). In the QNHS survey, respondents working in the different sub-sectors comprising the construction sector (i.e. construction of buildings (NACE 41), civil engineering (NACE 42) and specialised construction activities (NACE 43)) were asked to state whether they mainly worked on residential or non-residential projects. Those mainly working on residential and non-residential projects were summed to provide total residential and non-residential construction sector employment respectively.
- The labour intensity values set out in the previous section are tested by applying them to historical data and if necessary making minor adjustments to the values so that the results coincide with the actual employment which was observed in the past in these three major sub-sectors. The validated labour intensity values when applied to output forecasts in the three main sub-sectors provide total forecast employment figures.
- Each sub-sector, however, will have a unique occupational profile associated with any given level of output. The so-called wet trades for example will be over-represented in residential development, while civil engineers and construction plant operators and drivers will be more prevalent on physical infrastructure projects.
- The occupational shares of employment in the three major sub-sectors are thus estimated as follows: the occupational shares in residential development are based on the responses to a question in the Quarterly National Household Survey on whether or not the respondent is working mainly on new houses and house renovations; the occupational shares in physical infrastructure are based on the occupational shares in NACE 42 which covers civil engineering and the occupational shares in the final sub-sector is based simply on the residual shares.

- As the methodology entails tracking the evolving relationship between three variables: construction output, employment and apprentice intake levels, the methodology implicitly takes account of the impact of changing technologies and building practices over time on the recruitment of different trades. The historical data on the relationship between these variables revealed a relative decline in the recruitment of bricklayers for any given level of output - particularly since 2010. While there are likely to be other factors which have the potential to impact the future demand for skills in the construction industry, such as technological advances in construction methods using robotics and automation, for example, it is not possible to predict what changes might take place. As the projections are only over a four year period, they do not anticipate any major changes in technology up to 2020.

The projections derived for total direct employment by broad occupational groups are set out in Table 5.2 for the period to 2020.

TABLE 5.2: FORECAST OF DIRECT EMPLOYMENT TO 2020 FOR CONSTRUCTION OCCUPATIONS IN THE CONSTRUCTION INDUSTRY

	2007 Actual	2015	2020 Forecast	2015- 2020 change	2015- 2020 % change	2007- 2020 change	2007- 2020 % change
Managers (1)	7,600	9,000	9,600	600	7%	2,000	26%
Professionals and Associate Professionals (2)	8,600	7,700	8,700	1,000	13%	100	1%
Skilled craftspersons	122,100	48,900	88,900	40,000	82%	-33,200	-27%
Electricians	23,100	9,700	15,200	5,500	57%	-7,900	-34%
Bricklayers and Masons	14,600	3,200	7,800	4,600	144%	-6,800	-47%
Plumbers, Heating and Ventilating Engineers	15,200	7,800	11,800	4,000	51%	-3,400	-22%
Carpenters and Joiners	37,400	15,500	30,800	15,300	99%	-6,600	-18%
Plasterers, Floor and Wall Tilers	19,900	5,500	13,900	8,400	153%	-6,000	-30%
Painters and Decorators	11,900	7,200	9,400	2,200	31%	-2,500	-21%
Other Construction Trades (3)	11,900	4,900	9,900	5,000	102%	-2,000	-17%
Other Trades (4)	28,100	13,500	26,900	13,400	99%	1,200	4%
Operatives	20,800	11,700	18,100	6,400	55%	-2,700	-13%
Labourers	42,100	13,100	27,600	14,500	111%	-14,500	-34%
All other occupations	29,000	16,700	23,100	6,400	38%	-6,100	-21%
Total Construction	270,300	125,500	212,700	87,200	69%	-57,600	-21%

Source: SLMRU, Solas.

Note 1: Includes all types of managers employed in the construction sector.

Note 2: Includes all types of professionals and associate professionals employed in the construction sector.

Note 3: Includes Pipe Fitters; Steel Erectors; Roofers, Roof Tilers and Slaters; Glaziers, Window Fabricators and Fitters; Construction and Building Trades' supervisors.

Note 4: Includes Construction and Building Trades not elsewhere classified; Metal Working Production and Maintenance Fitters and Furniture Makers and Other Craft Woodworkers.

5.1 IMPLICATIONS FOR THE CONSTRUCTION SECTOR

According to Table 5.3, total direct employment in construction is forecast to increase to 212,700 persons by 2020. This forecast, derived using estimates from the construction output scenario presented in Section 3, assumes that current policy regarding construction activity is delivered over the forecast period. Should anything derail that policy being implemented, such as a lack of confidence amongst buyers and developers, a lack of finance

for projects, delays to the capital programme or planning constraints, the direct employment trajectory would be lower than that projected over the next four years.

Direct employment projected to increase by 76,000 over next four years

Based on the construction output scenario presented in this report, it would seem prudent to plan for an industry that will provide direct employment for around 213,000 persons by 2020 compared with 136,900 in Q2 2016. This amounts to an additional 76,000 jobs over the next four years and would return direct employment in the sector to Q4 2008 levels. While ambitious, the projection reflects a positive economic outlook, the forecast of 32,000 housing completions by 2020 and the infrastructure provisions in the Capital Plan. It assumes all of the conditions are in place to facilitate an industry with a gross turnover of around €20 billion (2015 prices) by 2020.

Replacement demand – almost 36,000 workers over next four years

The projections provided are based on expansion demand arising from the increase in construction output to 2020. In addition there will be significant replacement demand for workers required to do the jobs of individuals who leave the labour market as a result of illness, retirement or death. Based on analyses of flows from the labour force to inactivity in 2015, it is estimated that approximately 6,700 construction workers exited employment in the construction sector in that year. This is equivalent to a rate of 5.3 per cent. Applying this replacement rate to the projection for total employment in 2020 generates a total replacement demand of 11,300 in 2020. However the cumulative replacement demand in the four period 2016-2020 is estimated at around 36,000 construction workers, which is significant in the context of the expansion demand by 2020.

The overall replacement rate of 5.3 per cent disguises the fact that the replacement rate for the skilled trades is somewhat higher at almost 6 per cent while the rate for other occupations such as professionals is considerably lower.

Including replacement demand, the requirements is 112,000 over next four years

When the issue of replacement demand is taken into account, the total labour requirement is closer to 112,000 workers over the next four years.

Demand for skilled craftspersons to increase by 36,000 over next four years

Employment in all occupational groups is projected to recover above their 2015 levels. However, for most occupational groups, employment is projected to remain below 2007 levels.

The population of qualified skilled craftspersons in the economy was 63,800 in 2015 (Table 4.5), which corresponded to 39 per cent of all persons with a construction related occupation. Including apprentices (which are counted in official employment figures), the total was 68,200. Based on the scenario above, the total skilled craftspersons working in construction was almost 49,000 in 2015 and is expected to increase by 40,000 to almost 89,000 by 2020 (Table 5.2).

Assuming skilled craftspersons maintain their share of total construction employment in Q2 2016 as in 2015 (39%) would imply the numbers employed would be around 53,000 currently³⁹, generating an increase in demand of around 36,000 by 2020 on the Q2 2016 figure.

The more disaggregated projections show the strongest growth in percentage terms over the five years is expected in the demand for Plasterers, Floor and Wall Tilers (+153%) and

³⁹ 39 per cent of the total Q2 2016 construction employment figure of 136,900 = 53,391.

Bricklayers and Masons (+144%). In absolute terms, demand is expected to be highest for Carpenters and Joiners (+15,300) and Labourers (+14,500). The composition of the skills requirement reflects the increasing share of building in the total output relative to civil engineering over the forecast period.

Over the three year period September 2013 to September 2016, there were some 5,110 new apprentice registrations in the construction sector, generating an average of 1,703 per year. This compares with an average of almost 2,600 over the period 2005 to 2015. Thus there needs to be an urgent ramping up of apprenticeship registrations, if the industry is to have the capacity to deliver in line with policy targets. Moreover, as construction output recovers, new skills will tend to emerge, reflecting technological developments, changing work practices and the introduction of new regulations.

5.2 PROJECTIONS FOR THE APPRENTICE INTAKE REQUIREMENT

The methodology for ascertaining the apprentice intake requirement for construction related trades involves applying the appropriate historical ratios of apprentice intake to total employment for each trade to the 2020 forecast of employment for each trade nationally. This generates a combined forecast of employment for each trade in the construction sector and across all other sectors of the economy. The latter forecast is derived by applying the forecast share of employment for the trades in all sectors, excluding construction, to the 2020 total forecast of employment for all sectors, excluding construction. The non-construction sectoral forecast is based on producing total employment forecasts nationally, based on the most recent national employment predictions from the Department of Finance, and subtracting the 2020 forecast of total direct employment for the construction sector of a lower estimated figure of 195,000 from the overall total.

The total forecast direct construction employment in 2020 is 212,700. For the purpose of estimating the requirement for apprentices, it is prudent to begin with a more modest figure and to adjust the prediction upwards as the forecast materialises. This is considered to be a realistic strategy as the apprentice forecasts are updated on an annual basis. For this reason, the forecasts of apprentice intake requirements for the construction industry for the period 2015-2020 are based initially on a total direct employment forecast of 195,000 in 2020.

New apprentice intake to increase to 3,840 by 2020

The forecast of the total requirement for apprentices for the construction designated trades are shown in Table 5.3 below. The figures show a projected intake requirement of 3,840 construction related apprentices in 2020, which is 2,127 above the intake levels for the most recent calendar year (2015).

The difference is substantial in respect of all trades with the exception of construction plant fitters. Recruitment levels in this trade were already quite high in historical terms in 2015, driven in part by the surge in activity in the non-residential commercial sub-sector.

The difference between the 2015 actual intake and the projected 2020 intake is particularly striking in respect of the so-called 'wet' trades, bricklayers, plasterers and painters and decorators. The current intake of apprentices into these trades is very low, reflecting the fact that until 2015 residential development was virtually confined to a few thousand self-builds.

However, with 8,088 dwellings commenced in 2015 and 7,139 in the first eight months of 2016, there is evidence of a gradual increase in the level of recruitment of apprentices to the 'wet' trades.

The requirement however is for over 30,000 residential units to be built annually by the end of the decade. This level of residential activity will require a substantial increase in the recruitment of apprentices.

TABLE 5.3: PROJECTED APPRENTICE INTAKE REQUIREMENTS BY TRADE IN 2020

	2006	2015	2020	Change '15-'20
Electrician	2,269	956	1,415	459
Carpentry	1,907	291	1,045	754
Plumbers	1,500	289	750	461
Bricklayers	473	26	180	154
Plasterers	220	7	120	113
Painting and Decorating	161	19	110	91
Construction Plant Fitter	88	77	80	3
Wood Manufacturer and Finisher	221	48	140	92
Total	6,839	1,713	3,840	2,127

The availability of construction craft workers

As recently as 2007, the construction industry was providing direct employment for 273,900 workers. This figure included a very significant number of qualified craft workers. Over the last eight years, many of these craft workers emigrated or retired. However, a number would have stayed within the industry and obtained contracts of work from time to time.

An analysis of persons completing the Safe Pass course provides a useful indication of the occupational composition of construction workers. Safe Pass is a one-day safety awareness training programme which enables all construction workers to work on construction sites without being a risk to themselves or others. Employers are required by law to ensure that employees on construction sites carry Safe Pass cards. As a result, employers must ensure that all employees are properly trained. Legislation requires general construction workers, craft workers and on-site security personnel to have a valid Safe Pass card, which has a life of four years.

A comparison of the number of persons with a valid Safe Pass in construction designated trades at the end of 2015 with official employment figures for 2015 provides an indication of the number of persons in each trade who have a valid Safe Pass but who are not employed.

TABLE 5.4: CONSTRUCTION CRAFT WORKERS WITH A VALID SAFE PASS IN 2015 WHO WERE NOT EMPLOYED IN 2015

Construction Trade	Total numbers with new	
	Safe Pass 2012-2015	of whom not employed
Electrician	20,740	5,631
Carpentry	19,728	1,600
Plumbers	8,024	0
Bricklayers	6,880	2,766
Plasterers	6,965	3,932
Painting and Decorating	6,647	0
Construction Plant Fitter	1,511	0
Wood Manufacturer and Finisher	1,922	0
Total	72,417	13,929

A zero denotes roughly similar figures using both measures (Safe Pass and QNHS).
Source: SLMRU Solas and CSO.

The above figures include all those who would have obtained a Safe Pass card at any point over the period 2012-2015 inclusive. Thus 72,417 persons had completed a Safe Pass course in the four years to 2015. It is possible that some may have emigrated or have left the labour force for other reasons and are no longer available to the industry.

Nevertheless the figures would suggest that there may be a considerable number of electricians, plasterers, bricklayers and carpenters who are currently looking for work. This reasoning is at least partially supported by the fact that the official unemployment figures for 2015 show that there were significant numbers of unemployed carpenters and plasterers in particular, while the numbers of unemployed bricklayers and electricians were more modest. This assumes they have not upskilled in the meantime and are not employed in different occupations.

5.3 ENHANCING SKILLS AND CAPACITY

The scenario presented for construction is one of an industry in recovery phase, which is on course to experience the most positive prospects in a decade, provided it has the necessary skills available to meet the demands on the industry. The analysis shows the significant skills gap which exists, with a requirement for an additional 76,000 persons over the next four years, including 36,000 qualified skilled craftspersons, as well as a replacement demand of 36,000. There is a particularly pressing issue with respect to the availability of apprenticeships, following the near collapse of apprenticeship registrations. Apprenticeship based occupations are a key component of the skilled construction labour market. The combination of technical education and practical experience obtained via the apprenticeship system leaves apprentices well placed to contribute the knowledge, skills and competencies needed to perform as a craftsperson in the workplace. There are also benefits for employers and the positive prospects for construction should encourage them to participate more in the apprenticeship training system.

The European Commission's 2016 country report on Ireland⁴⁰ notes that skills shortages are emerging as a result of the economic recovery. It also acknowledges the role of effective labour market activation policies as well as relevant upskilling and reskilling opportunities.

⁴⁰ http://ec.europa.eu/europe2020/pdf/csr2016/cr2016_ireland_en.pdf

In the construction sector, there needs to be an urgent ramping up of apprenticeship registrations, if the industry is to have the capacity to deliver in line with policy targets. Moreover, as construction output recovers, new skills will tend to emerge, reflecting technological developments, changing work practices and the introduction of new regulations. What is required is an enhancement of the skills capacity in the industry to ensure the industry can deliver the demands placed on it over the medium-term. Accordingly it is recommended that Government and industry should collaborate to:

1. Establish a Construction Skills Forum within the current National Skill Strategy Group between the Departments of Education and Skills and Jobs, Industry and Innovation, to monitor progress and address barriers in the education and training system which are impeding the delivery of the required skilled employees. This forum would meet quarterly and report annually to work as a feedback mechanism between industry and the education and training system allowing issues to be resolved in partnership.
2. Use this report as a benchmark to constantly monitor progress and year-on-year changes in the composition of skills in the sector, to ensure the education and training system is equipping graduates/employees with the skillsets that will best serve them and the industry.
3. Improve the image of the industry by inspiring young people through extensive communications on the industry's ability to shape Irish society and deliver world class projects, promoting the highest health and safety standards in the EU and through insisting on standards through measures such as the Construction Industry Register Ireland (CIRI). This should involve the development of a national awareness campaign on careers in the construction industry and related fields through the Construction Industry Council and partners.
4. Deliver an international recruitment drive to target the Irish diaspora, to attract skilled construction personnel back to Ireland.
5. Refine apprenticeships and seek to introduce innovative methods of apprenticeship delivery, including the roll out of a shared apprenticeship scheme.
6. Engage with Solas and the Education and Training Board (ETB) network to deliver skills courses nationally that can take people with construction skills off the Live Register within a number of weeks and meet the emerging skills demand as identified by industry.
7. Adapt initiatives such as 'Leadership for Growth' and deliver to a wider cadre of management functions within construction companies in all size cohorts of the sector.
8. Refocus CIF Training and its Construction SME Skillnet on driving new skills around modern building techniques, green construction and professionalism across the industry.

5.4 CONCLUSIONS

Having identified the skills requirement, the next step is to ensure the education and training system can deliver the prerequisite numbers with the necessary training and skills to deliver buildings and infrastructure to the standards required. The Action Plan for Housing and Homelessness includes a commitment to support construction innovation and skills by giving responsibility to the Department of Education and Science to ensure that mainstream and targeted education and training initiatives are in place to support the Action Plan. The above initiatives recommend a wider collaboration between all stakeholders, including the Department of Education and Skills. While this report does not address the supply side, it is clear that initiatives are required to encourage new entrants into the industry so that it can deliver the sophisticated technical and building requirements of an expanding population and economy.

6. APPENDIX 1

The Irish construction sector comprises Residential and Non-residential segments (private non-residential, social infrastructure and productive infrastructure).

Investment in new buildings and infrastructure is captured as well as expenditure on repair, maintenance and improvement (RM&I) works associated with the existing stock of buildings and infrastructure.

Residential Construction

- Comprises private and public investment in **new house building and the repair and maintenance and improvements (RM&I) of dwellings** by households, local authorities and voluntary or non-profit housing bodies.
- Housing RM&I covers investment by households in major housing improvements and minor repair works and public sector investment for remedial works, energy efficiency improvements and turnaround of casual vacancies and vacant stock as well as the refurbishment of the social housing stock.

Public Sector Construction

- Covers investment in **social infrastructure and productive infrastructure** (predominantly funded by the public sector).

Private Non-residential Construction

- Captures private sector investment in **Industrial, Commercial** (Office, and Retail), **Tourism** and **Agricultural** buildings.

Non-residential Construction

- Includes **non-residential buildings and infrastructure projects**.

Non-residential Buildings

- Captures investment in non-residential buildings by the private and public sector.
- Private non-residential Construction** covers investment by the private sector in buildings including Industrial, Commercial (Office and Retail), Agricultural and Tourism. Public sector investment by semi-State companies and Government agencies in buildings is also captured.

Infrastructure Projects

- Social infrastructure:** covers investment in **public buildings**, (predominantly funded by the Exchequer/public sector) such as hospitals, schools, prisons, garda stations, libraries, public sports' facilities).
- Productive infrastructure:** covers investment in **infrastructure or civil engineering projects** (which is predominantly funded by the Exchequer/public sector) such as the national and non-national road network, water services, airports, seaports, as well as investment by the respective semi-State organisations responsible for transport, energy and telecommunications and some private sector investment by private companies operating in the energy and telecommunications sector.



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