

**IRELAND'S
CONSTRUCTION
SECTOR:**

**OUTLOOK AND STRATEGIC
PLAN TO 2015**



Foreword

Ireland's construction sector has the potential to create regionally distributed jobs and wealth. It is also a crucial factor of competitiveness in the economy as it provides the infrastructure and buildings on which every other sector relies. This dual role means that a sustainable and competitive construction sector is a vital component of Ireland's economic recovery and growth into the future.

After a prolonged period of unsustainable growth, the sector has contracted to an equally unsustainable low level of output. The longer this continues, the greater the risk of losing investment to other locations with which we compete and valuable construction expertise. It is imperative that construction returns to a sustainable growth path so that it can make an optimal contribution to economic recovery and even more critically, support other sectors in their contribution.

As is the case in other developed economies, domestic market conditions continue to have a major bearing on the performance of the Irish construction sector and its job creation potential. The sector in Ireland also has the potential to further internationalise, leveraging skills and expertise built up over recent decades in providing technically advanced property solutions in sectors such as pharmaceuticals, ICT and data centres, food processing and energy generation.

As part of the Action Plan for Jobs 2012, Forfás was asked to develop a national strategy for the construction sector in consultation with key stakeholders. This report, *Ireland's Construction Sector: Outlook and Strategic Plan to 2015* comes at a critical juncture for the construction sector. It acknowledges the extent of current challenges, sets out a vision for the future, and identifies 36 priority actions aimed at accelerating its return to a sustainable growth path over the next three years to 2015 and beyond. It places particular emphasis on the need to simultaneously create confidence and momentum in the domestic market; remove unnecessary constraints to the development of infrastructure and buildings; and continue to reinforce capability so that the sector can operate competitively in domestic and international markets.

A number of Government Departments and agencies individually have a role to play in enabling the development and effective functioning of the construction sector in Ireland. A structured system of engagement with industry across the variety of issues that impact on the sector, together with a coordinated approach to addressing the sector's overall developmental needs into the future is a key requirement.

A handwritten signature in black ink, appearing to read 'Martin D. Shanahan', with a long horizontal line extending to the right.

Martin D. Shanahan

Chief Executive, Forfás

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Executive summary

Background

The construction sector has a dual role in Ireland's economy. As a sector in its own right, it directly provides 96,300 regionally distributed jobs across a variety of occupations and skill levels, and at 6.4 percent of GNP is a key generator of wealth¹. The sector also provides and maintains the physical infrastructures and buildings on which every other industry and society depends. Indeed, a competitive and dynamic construction sector and property market forms a crucial part of the business environment and is a critical competitiveness factor underpinning enterprise investment and growth.

Following a most dramatic transition from boom to bust, the sector now faces a tough challenge in seeking to return to a sustainable level of activity in the midst of an unprecedented national and international economic crisis.

Construction by its nature is a cyclical industry, aligned with economic performance generally. In Ireland's case, what started as a proportionate response to increased demand for property in the late 1990s rapidly progressed to an unsustainable property bubble with substantial over-building by the mid-2000s. With the sector now operating at a sub-optimal level it is now imperative that we return to a more sustainable pattern of activity and that mistakes of the past are not repeated.

There are significant constraints on the demand side for the construction sector currently, across all dimensions; the private residential market, the public capital programme, and private commercial/enterprise development. Notwithstanding these constraints, it is critically important that the needs of economy and society are met both in the immediate and longer term. It is imperative that where demand or potential demand exists, that barriers to investment proceeding, whether public or private, are addressed. For example, it is important that the multi-annual programme of investment in productive and social infrastructure already committed to by Government progresses without delay, conscious of the key role it plays in terms of job and skills retention and employment creation.

As is the case internationally, the vast majority of construction firms have focused on the home market, particularly during periods of high growth. Most have been severely impacted by the collapse of the overheated property market and paring back of exchequer spending, and many have limited capacity to seek out alternative business opportunities overseas. There has been a substantial loss of expertise and capacity as individual firms have resized to new market realities and many have ceased trading. Alongside high level capability, an adherence to standards and a high degree of professionalism across the board within the sector is required to underpin the sector's ability to fulfil its important role in meeting economic and social needs as the economy returns to a growth path.

The Action Plan for Jobs 2012 asked Forfás and the Department of Jobs, Enterprise and Innovation (DJEI) to develop, in consultation with stakeholders, a national strategy for the construction sector to 2015 outlining the opportunities, challenges and actions needed to realise the potential of the

¹ A measure of gross output from the sector that includes value generated from repair and maintenance projects, based on methodology used in DOEHLG *Construction Industry Review and Outlook (CIRO)*, various years

sector, to retain expertise in Ireland and to continue to develop capabilities over coming years². This strategy frames a suite of actions that will support the sector in returning to sustainable growth so that it can once again fulfil its dual role effectively.

The 2015 timeframe reflects the urgency of response required to address the challenges being experienced at present. At the same time, actions taken now also seek to underpin the future strategic development of the sector as it returns to a more sustainable output pattern over the longer term.

In developing this strategy, Forfás has consulted extensively with the industry, construction sector representative bodies, the enterprise agencies, key government departments and bodies, and other stakeholders. In addition to meeting individual stakeholders, a consultative group was convened to facilitate collective discussion among public and private sector stakeholders.

The construction sector today

Having grown to unprecedented levels in terms of output and employment in the decade to 2006/7, the sector is now making a much reduced but still significant contribution to the economy. In summary:

- The sector employs 96,300 people directly, accounting for 5.2 percent of total employment, and in terms of output in 2012 accounted for 6.4 percent of GNP overall³.
- Construction activity has a broader impact within the economy, through indirect employment of circa 48,000, and in the value of purchases it makes in the domestic economy (c.€19 billion in 2005)⁴.
- At the peak of the boom, in 2006, the sector made an unprecedented contribution of c.25 percent to GNP and accounted for over 12 percent of total employment. Since then, construction unemployment has grown substantially, and now stands at 58,000 people (almost 20 percent of total unemployment), with an average duration of almost 29 months (second only to agriculture)⁵.
- The value of domestic construction output has dropped by more than 40 per cent in private non-residential building and almost 27 per cent in private residential building, on average annually, over the 2007-2011 period. Public social infrastructure and productive infrastructure (civils) related construction output has declined by 6.7 per cent and 8.8 per

² *Action Plan for Jobs, 2012* (Action no. 7.12.4 p114), DJEI, 2012

³ Employment based on CSO QNHS, Q1 2013; Output is a DKM Economic Consultants estimate for Forfás, based on methodology used in DOEHLG, CIRO, various years

⁴ 2005 is the latest available data in relation to intermediate consumption contained in CSO Input-Output tables

⁵ People who had previously worked in Construction accounted for 20 per cent of all unemployed persons as of Q1 2013 (latest available CSO sectoral data); this has dropped from a peak of 81,000 in Q4 2009 (29 percent of total unemployed). Among males former Construction sector workers account for 36 percent of all unemployment as of Q1 2012. Source: CSO QNHS *Unemployment Thematic Report Q1 2005-2012 (updated tables)*, available at <http://www.cso.ie> (Q1 2013 data is based on a special CSO calculation for Forfás)

cent on average annually over the same period respectively. Estimates for 2012 predict further falls in output in all sub-sectors except private non-residential building⁶.

- As is the case globally, the sector is fragmented and occupationally diverse. The majority of employees are involved in construction trades (c. 60 percent) with the remainder occupied across a range of professional services and other activities. All occupational groups have been severely affected by employment losses over the past 3-4 years, although the impact has been greatest amongst construction trades.
- Many individuals have left the sector to gain employment/retrain in other sectors, through emigration, or through retirement. Overall, this points to a significant skills drain as expertise is lost to the sector and skills are not being maintained.
- The sector is comprised of over 40,500 enterprises, almost 34 percent fewer than existed in 2006⁷. Despite the reduction in number, the overall size profile remains broadly the same, with the vast majority (96.7 percent) engaging less than 10 people. This is a significant challenge for the sector in the context of realising internationalisation potential.

Overall, domestic market conditions are challenging; demand for new construction in private residential and commercial segments has collapsed while the public capital programme has suffered cut backs and deferrals. An absence of prudent speculation, compounded by lack of financing has created a scarcity of property solutions for new foreign direct investment (FDI) especially in Dublin city for example. Sustaining Ireland's position as an attractive location for investment requires the availability of grade one, headquarter type buildings, in addition to availability of suitable high-specification manufacturing and industrial units that can meet the needs of sectors such as lifesciences.

Some Irish construction firms have grown in scale and are competing successfully in international markets, as centres of excellence in areas such as civil and structural engineering, mechanical and electrical contracting, and power, energy and pharmaceutical construction and maintenance. Experience in developing world class high spec facilities catering to FDI pharmaceutical and ICT investments into Ireland over a number of years has helped to build a strong value proposition for Irish construction firms abroad.

The downturn in the domestic market has resulted in more indigenous firms making initial forays into overseas markets. Enterprise Ireland has recorded strong gains in international sales amongst its growing construction sector exporting client base in 2010 and 2011.

Apprenticeship and undergraduate courses in construction related disciplines were in high demand during the boom. Now a collapse in the number of new entrants has compounded the problem of expertise and capacity draining from the industry through long-term unemployment and exits from the construction labour force. In the meantime, there is an imperative to further up-skill existing construction sector personnel to take advantage of opportunities presented by the green economy.

Increased innovation adoption within the industry is necessary to ensure compliance with transposed EU Directives in relation to climate change, while maintaining a competitive edge

⁶ The downturn in construction activity is widespread within the EU-27 although Ireland is amongst a group of countries including Spain, Portugal and Greece where declines have been particularly severe. Construction output increased in Estonia, Lithuania, Poland and Germany in 2012 (Source: DKM Economic Consultants)

⁷ CSO *Business Demography 2006-2010*, CSO Statbank (latest available data)

increasingly requires firm level technology leadership through R&D activity. Higher Education Institutes' research activity has grown in line with the expansion of activity during the boom years and with increased market demand for greener construction, but engagement with industry is limited currently.

Shadow economy activity is a concern for the sector and tends to increase in times of high unemployment. Although data is limited, it is reasonable to assume that construction is likely to account for a significant share of such activity in the economy generally. A recent CIF survey (July 2012) suggested that three-quarters of construction companies had come across shadow economy operations in the three months prior to the survey⁸.

A sustainable future for construction in Ireland

A forward looking ambition for a sustainable Irish construction sector needs to encompass the following dimensions - a sector that is characterised as:

- **Responding to current and anticipating** future requirements in an informed and measured way;
- Meeting and **exceeding standards** of construction in an international context;
- Delivering in a **cost competitive, efficient & compliant** manner;
- Operating in **viable domestic market** conditions at a sustainable level of output;
- Winning more business in/from **overseas markets** in specialist areas;
- Always **seeking to innovate** rather than rely on traditional practices and methods;
- Sufficiently skilled with **world class capabilities** and **innovative and creative management**;
- Operating within strategic and **effective regulatory and planning** frameworks; and
- Working in **partnership with Government** in the context of providing the required infrastructures to meet long-term economic and social development goals.

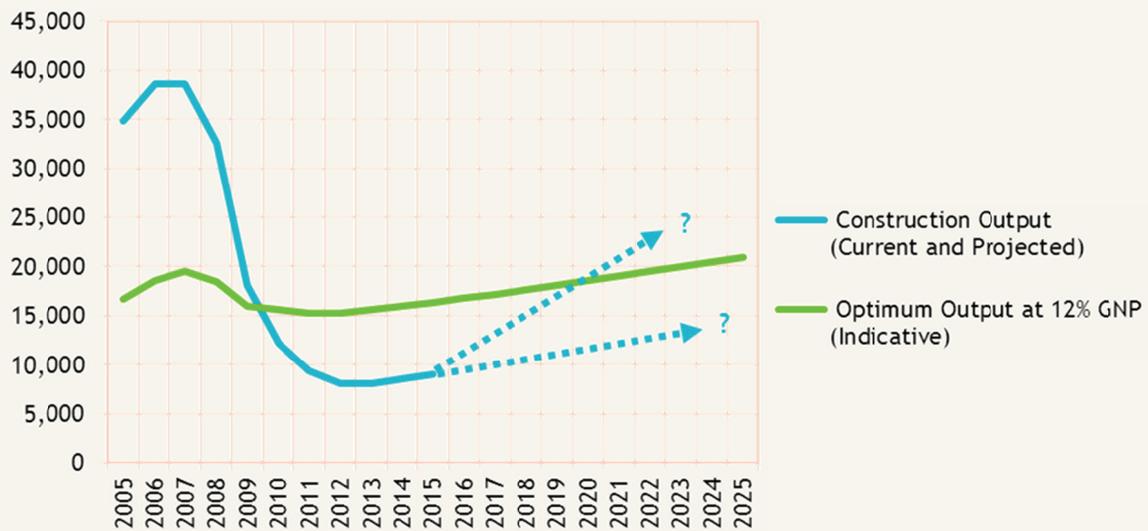
Optimal performance

Based on a comparison with the size of the construction industry in other countries and long-term trends for Ireland over past decades, it is plausible that an economy the size of Ireland with positive demographics and with remaining infrastructure deficits could be capable of sustaining a construction industry equivalent to around 12 percent of GNP (10 percent of GDP). Output is currently at 6.4 percent of GNP (five percent of GDP).

There is a significant gap to be bridged if the sector is to reach activity levels of up to 12 percent of GNP (Figure i).

⁸ CIF Black Economy Survey, July 2012, <http://cif.ie/assets/files/CIF%20Black%20Economy%20Survey%202012.pdf>

Figure (i) Construction output current trajectory versus optimum level (12% of GNP)



Source: Current and projected construction output data derived from DKM Economic Consultants analysis for Forfás (Optimum output as a percentage of GNP assumes a flat GNP growth rate of 2.5 percent)

The experience of the past 4-5 years has demonstrated that this is a sector that matters enormously, regrettably because we are now seeing the impact of its sub-optimal performance, brought about by a period of rapid and unsustainable growth. There is a real danger that with continued low levels of output there will be further erosion of valuable construction expertise and capacity. We also risk losing enterprise investment to locations where property solutions are more easily secured. And, as a society and economy we may begin to compromise on quality.

Outlook to 2015

Both known and anticipated domestic market demand over the next three years points to an overall output position of just under €9 billion, or 6.7 percent of GNP by 2015⁹, only a small increase on the expected out-turn for 2012 (see Chapter 3). At that level of activity any recovery in employment over the next three years will be marginal.

The key assumptions underpinning the projections are as follows:

- Residential construction:** continuation of very low house building rates in the context of on-going challenges with respect to the economy and household finances. A further set of austere budgets over the period 2013-2016, the build-up of mortgage arrears and negative equity, combined with little improvement in the unemployment rate suggests that housing demand will remain below normal levels in the medium term. The total number of new dwellings built in the next three years is projected to increase to 7,000 by 2015, up from 4,000 in 2013 and 5,500 in 2014. Much of the additional activity will be concentrated on repair, maintenance and improvement (RMI) in the residential sector for the period to 2015, including energy retrofitting, which is more employment intensive.

⁹ DKM Economic Consultants analysis for Forfás, 2012

- **Private non-residential construction:** difficult to gauge the level of activity due to lack of reliable data. However, information on the commercial property market from the main property agents indicates very limited new building activity over the period to 2015. Reports cite on-going uncertainty regarding economic outlook, a large overhang of stock, the tight lending environment, high levels of indebtedness amongst developers and developer/contractors, and cost of construction. There are signs of market recovery and increasing confidence in this sub-sector, including strong FDI performance and pipeline (especially in Dublin city centre), niche refurbishment opportunities, and increasing international investor interest in Irish property¹⁰.
- **Public capital investment (in productive and social infrastructures)**¹¹: this includes the multi-annual capital investment framework (MAECIF) to 2015 and the additional projects to be funded under the recent stimulus package. The current MAECIF projects a 13 percent decline in expenditure for 2013, followed by a six percent decline in 2014, and a stabilisation thereafter to 2016. The stimulus package will involve an additional €2.25 billion in capital investment over the 2013 to 2018 period.

A more optimistic forecast

A more optimistic forecast might include some more uncertain developments, for example, the potential impact of NewERA and the Strategic Investment Fund (SIF), or the potential for reprioritisation of deferred infrastructure projects in the public capital programme if additional sources of finance can be secured. There are other positive indications:

- In the macroeconomic environment, there is evidence of positive albeit slow progress in relation to GDP growth and restoration of the public finances and improved sentiment towards Ireland as evidenced in the bond markets. This helps to restore confidence amongst investors and lenders, and extends to the investment/spending choices of individuals.
- The performance of exporting sectors has been encouraging. IDA Ireland had three consecutive years of growth in net employment in FDI companies, while recent indigenous export performance has been exceptionally strong. There is a need for advanced/serviced property solutions ahead of demand as part of the marketing proposition for capturing mobile investment and already there are signs that availability is tightening.
- NAMA has announced that it will provide new development capital (c.€2 billion) over the next three years for completion of construction work in progress and the development of Greenfield sites in its portfolio¹².
- Beginning with the rollout of water meters, future investment in water infrastructure will continue to support construction activity.
- ESRI research (with reference to demographic analysis) points to potential real demand for new dwellings based on household formations in the region of 20,000 per year to 2016. Current projections on housing reflect the impact of depressed demand, constrained

¹⁰ NAMA: Contributing to Recovery, speech to the CIF National Conference by Brendan McDonagh, Chief Executive of NAMA, September, 2012

¹¹ This includes PPP projects and investment by semi-states (which involve both public and private capital)

¹² NAMA also plans to make €2 billion available in vendor finance to help stimulate movement of property from its portfolio

personal finances and personal indebtedness. An improvement in general economic conditions combined with increased levels of certainty and confidence amongst investors will at some point unlock this latent demand.

- Although the majority of firms in the sector will remain focused on the home market, there is potential for increased internationalisation. While not the panacea for the scale of the challenge facing the sector domestically at the present time, identifying and realising opportunities overseas will play a crucial role in the development and growth of the sector in Ireland for the longer term¹³.

On the downside, international macro-economic conditions remain uncertain and unemployment remains a key issue and constraining factor in relation to the residential housing market. Over the period of this strategy, high levels of unemployment and long-term unemployment are likely to prevail and will continue to impact on consumer demand. Key barriers in growing levels of internationalisation particularly in current economic conditions include: resource constraints (including under-capitalisation), lack of market knowledge and management experience, and lack of scale (97 percent of construction enterprises engage less than 10 people).

While it is unlikely that the sector can recover to a level of 12 percent of GNP by 2015, accelerated recovery could be realised if more certainty can be brought to bear in relation to the factors above and, where constraints on construction activity are in the control of Government or industry to influence, appropriate actions are taken. It needs to be acknowledged that there is little that Government can do to compensate for the contraction in construction activity, the bulk of which has been in private sector building. Capital expenditure by Government will continue to make a significant contribution to construction output; however this will be undertaken in the context of available resources, and maximising potential for private sector partnership.

Barriers and constraints on development

Where possible, obstacles to commencement of needed construction activity need to be addressed in the short term, without intervening in the market to such an extent that is counterproductive. The following issues have been highlighted in the course of consultations with industry stakeholders as key challenges to stability and recovery in the construction sector:

- Constraints on public capital spending:
 - A scaling back of capital expenditure in the context of the Troika framework and targets;
 - Cancellation and deferral of a range of proposed infrastructure projects ('stop-start'); and
 - Challenges in securing private financing to support the Government's planned investment in infrastructure, and to facilitate increased investment in required productive infrastructure.

¹³ Enterprise Ireland has worked intensively with prospective construction sector exporters on market research, management training, partnering, exposure to peer client experience and in-market supports. There continues to be a role for the State in assisting the construction sector in preparing well for successful business outcomes overseas, particularly in the current resource constrained context

- Private sector confidence and financing:
 - Severe constraints on the availability of finance affecting many aspects of the construction sector, including:
 - Individual indebtedness, mortgage arrears; reducing personal incomes (arising from unemployment and other factors);
 - Developers, many of whom are in serious financial difficulty and unable to raise new capital for investment;
 - Contractors with impaired balance sheets, compounded by difficulties in securing bonds¹⁴; and
 - Private investors/funding institutions (domestic and international) who have reduced their level of interest in the Irish property market (although there are signs of renewed interest).
 - Market uncertainty - exacerbated by a lack of information relating to prevailing market conditions (particularly in relation to the commercial property sector).
- Process rigidities constraining development:
 - Planning system issues that are adding uncertainty and generating unnecessary costs and delays to the development process;
 - Issues relating to public sector procurement (both the formal process and some aspects of industry practice including shadow economy activities) can have the effect of slowing down and/or creating inefficiencies in the delivery of construction projects¹⁵; and
 - Difficulties specifically associated with Government contracts¹⁶.
- Costs of construction/development:
 - Lack of consistency, transparency and in some cases persistently high, development levies;
 - Labour costs which although reduced are constrained from further reduction in the context of employment agreements; and
 - Cost of building materials continue to rise (although some of this is due to world prices for steel and oil based products).

¹⁴ A performance bond is a 'contract of guarantee' whereby one party (the guarantor) undertakes to pay damages to a second party (the employer) arising from breach of contract by a third party (the contractor), *Performance Bonds in Construction and Development*, Construction Guarantee

¹⁵ Refer to Chapter 6 (sections relating to public sector procurement, shadow economy)

¹⁶ For example, industry stakeholders have highlighted difficulties in adequately pricing for risk due to instances where incomplete information has been provided to contractors, and a time consuming and costly claims process (although this is not unique to public works contracts)

Maintaining capability and competitiveness

In order to realise our ambition to restore activity to sustainable levels, a concerted effort will be required to resolve immediate concerns and barriers outlined above. There is also an imperative to maintain a focus on addressing aspects that will underpin firm level competitiveness and drive a more sustainable sector for the long-term.

Globally, construction services and products are changing in response to influential market drivers. This is an important consideration not only for companies that are seeking to build business overseas, but also those competing in the domestic context where there is increasing likelihood of competition from overseas and a more sophisticated client demanding higher environmental standards, increased efficiency and lower cost. Key issues include:

- Widespread down-scaling of construction enterprises with consequential job losses and loss of expertise to the sector through emigration of skilled personnel;
- Negative perception of the sector as regards future employment prospects, dissuading potential entrants from accessing construction related education and training courses;
- Continued low take-up of ICT within the sector and an emerging competitive disadvantage in project delivery due to slow adoption of process improvement (e.g. Lean) and productivity enhancing building information modelling (BIM) systems;
- Up-skilling of a broad range of construction trades will be required so that the sector can take advantage of green economy opportunities, and to enable sector compliance with transposed EU Directives relating to climate change targets etc.;
- Management capability challenges relating to running and managing a business in the face of reduced demand and/or heavy indebtedness;
- Low levels of engagement currently between the HEI research community and the construction industry; and
- A perception of lack of compliance by some firms within the sector in relation to employment laws, taxation, quality of construction and building regulations¹⁷.

Actions for a sustainable future

Ireland needs a competitive, innovative, dynamic and sustainable construction sector because it sustains and creates jobs, generates wealth, and is capable of making a substantial contribution to economic growth through exports and foreign earnings generated.

Ireland also needs a high quality, efficiently delivered, built environment catering to an advanced society and an economy competing globally. A competitive, innovative and dynamic construction sector, with a sustainable activity profile and growth dynamic is therefore a key competitiveness factor for Ireland Inc. that needs to be maintained.

¹⁷ The forthcoming Construction Contracts Bill aims to address the issue of non-payment to contractors and subcontractors who have completed work on projects to the required standard. The Minister for Education & Skills (DES) is introducing random audits on school and DES funded third level building projects in a proactive move to verify pay and conditions compliance on such sites. The CIF *Black Economy Survey*, July 2012 indicates extensive shadow economy practices in the sector (for e.g. operating outside taxation provisions and labour regulations)

Market conditions are extremely challenging and it is accepted that interventions to artificially stimulate the market may be counterproductive. Recovery and future growth to an optimum 12 percent of GNP needs to be based on sustainable demand. What we can do is focus on removing obstacles in the way of facilitating development that is in demand. At the same time we must ensure that we have a construction sector that can deliver projects efficiently, competitively and at the highest standards of innovation, quality and professionalism.

The actions framed in this Strategy are therefore focused in five key areas:

1. Removing obstacles and restoring confidence in the domestic market
2. Driving further internationalisation
3. Embedding competitiveness and innovation
4. Ensuring the sector is skilled to deliver
5. Transforming governance

Even the most optimistic outlook for construction sector output would indicate that there will be limited opportunities for unemployed construction workers to return to jobs in the sector in the period to 2015. Tailored labour market activation measures, including Springboard, will continue to play an important role in enhancing employment prospects through reskilling and upskilling.

1. The domestic market - removing obstacles and restoring confidence

Although a greater proportion may ultimately internationalise, the vast majority of construction enterprises are oriented towards the local market. As a consequence, domestic market conditions have a significant bearing on how the sector as a whole contributes and performs from an output and employment perspective. We are currently faced with a situation where for a variety of reasons, in addition to depressed demand, output has fallen behind 'real' ('substantiated') levels of demand.

Where possible, obstacles to commencement of needed construction activity need to be addressed. In addition to short-term measures to encourage more normal market behaviours, we also need to remain focused on removing obstacles of a more structural nature so that where there is market demand, the sector can deliver with optimum levels of efficiency and responsiveness.

Government Public Capital Programme

The Government's Public Capital Programme (PCP) makes a substantial contribution to construction sector output. Currently, about half of total output from construction activities is related to public capital works (social and productive infrastructures).

The major review of infrastructure and capital investment for the period 2012-16 published in November 2011 (revised in February 2012), reflects a substantial scaling back and deferral of government expenditure over the next 4 years in the context of fiscal adjustment and reduced private sector project finance availability. Project deferrals and stoppages in particular have a direct impact within the construction sector in terms of: actual reduction in activity; increased uncertainty; reduced confidence in Ireland's PPP programme amongst investors and other parties¹⁸; and actual unrecoverable losses to the parties involved in bidding for projects.

¹⁸ PPP market sentiment has improved over the past few months according to DPER sources

Substantial progress has been made in bridging infrastructure gaps under successive NDP programmes. Despite what has been achieved, deficits remain to be addressed in order to underpin future enterprise development and economic growth¹⁹. The Government's Stimulus Package announced in July 2012 involving an additional €2.25billion in capital investment is welcome, although the bulk of the investment will be undertaken in the 2014-2016 period²⁰. The NDFA²¹ is working with DPER to compress the timeframe involved in preparing PPP projects to deliver to the market through to contract award from a typical 21 months to 15 months²². In addition, as a confidence building measure and to encourage SME participation, DPER will be introducing some (limited) reimbursement of bid costs for the three shortlisted bidders and the preferred bidder in the unlikely event that a PPP contract is cancelled at that stage.

Continued investment in productive infrastructure and appropriate reprioritisation of deferred projects not only deliver broad economy benefits, they also provide much needed employment in construction, retain and develop construction expertise and capacity, and potentially enhance the résumés of Irish construction service providers and product manufacturers with reference projects as they seek further business opportunity overseas²³.

No.	Actions	Responsibility
1	PPP and exchequer financed capital projects now scheduled for progression in the Government's Public Capital Programme and Stimulus package should proceed without delay.	DPER, NDFA & relevant Gov. Departments
2	Where there is uncertainty about future sources of finance for major PPPs it is important that initial planning/design work proceeds in order that projects can be activated at the earliest possible juncture.	DPER & relevant Gov. Departments
3	It is critical that efforts being made to identify other potential sources of private investment, and how they will operate (including Irish pension funds) are brought to a successful conclusion so that the current programme of capital investment may be delivered without harmful delay ²⁴ .	DFinance & DPER

¹⁹ For example infrastructure development priorities for enterprise development have been identified by Forfás in their July 2011 submission to DPER see <http://per.gov.ie/wp-content/uploads/Forfas-submission.pdf>

²⁰ The package involves an estimated €1.4m of investment by non-exchequer sources such as (National Pension Reserve Fund/Strategic Investment Fund; European Investment Bank, domestic banks; and other potential sources of private investment

²¹ NDFA - National Development Finance Agency provides financial advice to State authorities undertaking major public investment projects with a capital value of more than €30 million and has direct responsibility for the procurement and delivery of all PPP projects in sectors other than transport and the local authorities

²² The signing of contracts for the N11 and Newlands Cross PPPs is an important confidence building event for the Irish PPP market

²³ DPER is currently working on draft preliminary social procurement contract clauses which will set targets and conditionality, to take people from the live register for the duration of contracts and for apprenticeships. Initially this will be done on a pilot basis to establish their effectiveness in delivering intended results

²⁴ DPER is actively engaging with EIB in relation to their support for projects. Engagement has also commenced with the Council of Europe Bank

4	Prioritise other additional projects (including some which were deferred) that will deliver productive returns to the economy as soon as financing options are identified.	DPER
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Energy retrofitting

The EU is committed to reducing greenhouse gas emissions to 80-95 percent below 1990 levels by 2050²⁵. The Irish Government has committed to achieving, by 2020, a 20 percent reduction in energy demand across the whole of the economy. It is expected that the residential sector will contribute 35 percent of the targeted savings.

The National Energy Efficiency Action Plan 2009-2020 aims to improve efficiency standards in older homes through retrofitting measures. Three State funded schemes have been in operation to incentivise homes and businesses to undertake energy efficiency upgrades: Better Energy Homes, Better Energy Warmer Homes, and Better Energy Workplaces (closed April 2012), and the development of market-based mechanisms such as ‘pay as you save’ (PAYS)²⁶ are being considered. Budget 2013 has indicated that the State will provide €35 million in seed capital in support of a new Energy Efficiency Fund to stimulate and leverage further investment in energy efficiency projects in the public and commercial sectors.

Whether incentivised by grant supports or otherwise (for example promotion of the ‘pay-as-you-save’ model), energy retrofitting is a labour intensive activity that supports employment in the construction sector. State funded incentive schemes have also had the added benefit of raising quality standards and skill levels through quality assurance criteria deployed as part of the schemes.

No.	Actions	Responsibility
5	Ensure that the future potential for energy retrofitting is realised through accelerated implementation of effective incentive mechanisms under development by the Department of Communications, Energy & Natural Resources in partnership with the private sector.	DCENR

Private sector developer confidence and financing

A consequence of the economic downturn and property crash has been the emergence of severe constraints in the availability of finance, affecting all aspects of construction, including the constraints on Government expenditure and accessing alternative sources of private finance mentioned above. More generally however, the problem extends to: private individuals, developers/developer contractors, contractors with impaired balance sheets, and private investors who have reduced their level of interest in the Irish property market. In addition, contractors are currently experiencing difficulties in securing performance bonds.

²⁵ COM (2011) 112 *Energy Roadmap 2050*, European Commission. According to the Roadmap, the cost efficient contribution of the buildings sector would be around 40 to 50 percent in 2030 and around 90 percent in 2050

²⁶ Since the start of 2012 there has been a notable decrease in applications across the Better Energy residential grant schemes. The PAYS concept allows consumers to finance energy efficiency measures, using the money that they would have otherwise spent on their energy bills

The coexistence of these individual constraints at the present time has adversely affected prospects for increased construction activity even where there are indications of emerging demand. A continuing lack of activity and momentum can in turn affect investor confidence. There is also increasing evidence of an approaching pinch-point in relation to the availability of appropriate property solutions for potential FDI clients in the medium term based on the current level of construction activity, particularly in the Dublin office market.

There is no doubt that a return to a normally functioning market will depend on more than the freeing up of finance (not least a significant improvement in Ireland's economic fortunes generally). However, small movements in a depressed market can have the effect of building confidence, increasing market certainty, and ultimately creating some forward momentum. Budget 2013 has paved the way for the introduction of REITs as an additional channel of financing for investment in property²⁷. This is a welcome development in a market where traditional sources of investment financing are constrained²⁸.

The following actions are deemed appropriate to build further momentum and confidence and in particular ensure that financial constraints in the property sector do not damage prospects for enterprise investment (especially FDI).

No.	Actions	Responsibility
6	NAMA and IDA Ireland should continue efforts to encourage development of suitable office solutions in the Dublin area to meet anticipated FDI demand, and where appropriate, direct existing and future developer finance initiatives towards meeting medium-term supply shortages.	NAMA, IDA Ireland
7	Ensure that appropriate financing mechanisms are available so that the building requirements associated with anticipated FDI investments are adequately catered for in Gateway locations, particularly in relation to attracting the next wave of manufacturing investment.	DJEI
8	It is anticipated by the PSRA that the commercial leases database will be put in place during the early part of 2013 and that it will contain data relating to leases entered into after 3 April 2012 ²⁹ . Given the dearth of property related data in Ireland, it is essential that this target is adhered to. The possibility of extending the database to cover the purchase of commercial property should also be considered.	Property Services Regulatory Authority

Performance bonds:

In construction, a performance bond is a 'contract of guarantee' whereby one party (the guarantor) undertakes to pay damages to a second party (the client) arising from breach of

²⁷ REITs (Real Estate Investment Trusts) provide an after-tax return for investors similar to that of direct investment in property, while also giving the benefits of risk diversification

²⁸ The recent announcement by NAMA to make €2 billion of developer financing available over the next four years is also a positive step

²⁹ PQ Response by the Minister of Justice, Equality and Law Reform [33354/12], 10 July 2012

contract by a third party (the contractor)³⁰. A performance bond removes a considerable amount of financial risk from a construction project on the part of the client/employer and is a requirement for most construction projects today.

Current conditions within the construction sector internationally and domestically have led to reevaluation of risk, for example the high rate of company failure in the industry, and the calling in of bonds. Industry sources have reported that the value of bonds in the Irish context are being set at higher levels - up to 25 percent, which is considerably higher in Ireland than in the UK and much of Europe currently). There has also been an increased tendency for more stringent bond conditions, for example the extension of the bond period³¹.

The industry also contends that bond providers are increasingly reluctant to issue bonds in excess of 10 percent and, in some cases, to remain involved in the Irish market. If performance bonds become unavailable to construction firms in Ireland, contracts may not proceed, with serious consequences for individual contractors as well as delayed development projects³².

No.	Actions	Responsibility
9	Include performance bonds in the construction sector as part of the review of trade financing to be undertaken by DJEI in 2013.	DJEI

The role of NAMA:

By virtue of its mandate, NAMA has a vested interest on behalf of the Irish public in seeing a return to sustainable activity in the property market. It has taken some steps to use resources at its disposal to encourage market activity but it also has an obligation to do so in a sustainable manner without creating market distortions. Important confidence building measures have been introduced by the Agency in the past twelve months, and work is on-going to generate interest from external investors in the Irish property market and to create new vehicles for channelling investment towards Irish property, including a new Qualifying Investor Fund.

These are important initiatives that have significance not only for the achievement of NAMA's ultimate objective on behalf of the taxpayer, but can create positive reverberations within the property market generally, and generate construction activity and jobs on the ground.

No.	Actions	Responsibility
10	Continue to communicate NAMA strategy to the extent possible, recognising that an appropriate balance must be maintained between fostering market certainty and protecting commercially sensitive information in the interests of maximising returns to the Irish taxpayer.	NAMA

³⁰ *Performance Bonds in Construction and Development*, Construction Guarantee

³¹ Upon substantial completion of a public works contract the bond level is reduced by 50 percent for a period of 18 months to coincide with the defects liability period which is considered part of the normal performance period under a contract

³² DPER has issued a circular reducing the level of performance bonds required under a public works contract (Circular 07/13 issued on 1st May 2013)

Effective and efficient processes

Process and regulation are necessary to ensure that construction:

- takes place in a planned and sustainable manner (the planning system);
- is undertaken safely and with adherence to best practice (building regulations);
- that where contracts are required these are fair and reasonable to all parties and enable effective and efficient delivery of the services required (construction contracts legislation, Government Contract); and
- that when the State engages with the private sector in the procurement of construction services, the process is fair and efficiently managed (public procurement).

Consultation with the industry and other stakeholders has highlighted issues in relation to the planning system, procurement, and the 'government contract' in particular.

The planning system:

In relation to the planning system, various organisations and bodies have articulated specific barriers within the planning system³³. Many of these have taken on a heightened degree of importance in the context of reduced levels of activity in the construction sector and property market. Some issues raised include *inter alia*: uncertainty and delays in relation to planning application outcomes, including those relating to strategic infrastructure; lack of consistency in approach and meaningful engagement at pre-planning; unnecessary complexity and delays where parallel consent processes are involved; excessive costs and lack of transparency in fee structures; slow adoption of e-planning; and overly restrictive 'exempted development' provisions.

A number of developments are currently being progressed by the Department of Environment, Community and Local Government. Informed by the *Planning Review Report*, DECLG has commenced a comprehensive review of the existing *Development Management Guidelines* (last updated in 2007). The DECLG is also in the process of developing a *Planning Policy Statement* to better communicate the evolving nature of the planning code, and promote a better understanding of planning in general.

Alongside these initiatives, DECLG has recently completed a consolidation of the Planning Acts (in conjunction with the Law Reform Commission) and also the Planning Regulations to make them more comprehensible and accessible. A process will commence in 2013 which will lead to the development of a successor to the National Spatial Strategy (NSS). This presents an opportunity to provide greater certainty around long-term development planning priorities.

To ensure progression of development in the context of present challenges for the construction sector it is important that these activities take cognisance of user articulated barriers.

³³ Including: *The Cost-Effective Delivery of Essential Infrastructure*, Irish Academy of Engineering & Forfás, 2011; *Strategic Infrastructure Planning: Making it Better (research paper)*, Chambers Ireland, 2011; *Cost of Doing Business in Ireland*, NCC, 2011; *Planning a Better Future: A Report on Reform of the Irish Planning System*, Property Industry Ireland, 2012

No.	Actions	Responsibility
11	<p>The on-going review of Development Management Guidelines is welcome and represents an opportunity to address any inconsistencies, inefficiencies and lack of transparency within the planning system currently; it is critical that:</p> <ul style="list-style-type: none"> ▪ the process involves engagement with users of the system to facilitate necessary enhancements; ▪ the revised guidelines have adequate statutory underpinning to ensure that they are applied in practice and in a consistent manner; ▪ and where unnecessary constraints to development are identified that are outside the current scope of the Development Management Guidelines, and require legislative change, they are urgently addressed. 	DECLG
12	<p>Preserve and continue to advance on progress achieved to date in bringing increased coherence and statutory weight behind the forward planning process, as implementation of the extensive structural changes to Local Government envisaged under ‘Putting People First’ proceeds.</p>	DECLG
13	<p>In order to reduce the unnecessary regulatory burden and costs (to both State and applicant), introduce integrated approval processes with respect to major infrastructure projects and make a single authority responsible for granting approval to commence construction. The proposed approach to integrating the foreshore consent process within the planning system is an important step but needs to advance more rapidly.</p>	DECLG
14	<p>The proposed development of a successor to the National Spatial Strategy is welcome and should proceed with due consideration of the following:</p> <ul style="list-style-type: none"> ▪ The core principles of the NSS should be retained; and ▪ The NSS successor should be placed on a statutory footing. 	DECLG

Public Sector Procurement:

The delivery of public capital projects will form a major component of construction sector activity over the period to 2015 and beyond. An effective and efficient procurement process is essential in ensuring that projects are delivered without delay. It is also critical that through the process, the State secures maximum value and quality on behalf of the taxpayer. In delivering to both of these aims the process must ensure that the interests of all parties (client, i.e. the State, and contractor) are considered fairly throughout the process and in accordance with the relevant procurement laws currently in place.

There are concerns from a construction industry perspective that elements of the system (including PPP process) are functioning in a manner that is both detrimental to participating firms and to the interests of the State as client. Key issues raised include:

- Cost of (repeated) pre-qualification process;
- Cost of preparing a bid (especially for projects of relatively low value) - including detailed designs up-front;
- The increasing role and cost of legal processes; and
- Lack of coherence and sharing of best practice across multiple contracting authorities.

High industry standards of behaviour such as those relating to regulatory compliance (tax, building regulations, health and safety etc.), payment of sub-contractors and employees, and other statutory obligations have a role to play in the delivery of a cost effective and efficient construction procurement system.

The Construction Procurement Reform Initiative has been underway since 2007 and is set to run until 2017, with objectives to achieve greater cost certainty at tender award stage, better value for money (VFM), and more efficient delivery of public works projects³⁴.

It is timely to reinvigorate the reform process with consideration of a broader agenda focusing on process efficiency and effectiveness and sharing of best practice³⁵.

No.	Action	Responsibility
15	Review and refresh the on-going construction procurement reform programme, to include a more comprehensive agenda, in consultation with the construction sector. Designate a senior official within the Department of Public Expenditure and Reform to lead the process.	DPER

Government contracts:

A new form of contract for all major public works was brought into effect by the Department of Finance in 2007. The objective behind the initiative was to achieve greater cost certainty, better value for money for the Exchequer and more efficient delivery of public works projects. The new contract represented a shift away from the formerly used value and measure contracts where the Employer retained all the risk.

While the new contract has increased the level of price certainty on capital procurements³⁶, a number of issues have been highlighted by industry stakeholders, which it is contended have serious financial implications for participant contractors, and in some cases the effect of dissuading them from future engagement with public contracts. This ultimately creates challenges for the efficient delivery of essential infrastructure projects. Issues raised by industry include:

³⁴ A number of steps have been taken such as the introduction of standard forms of public works contract, standard conditions of engagement, pre-qualification questionnaires and a suite of model forms to encompass many of the regular tasks undertaken in the course of a construction project

³⁵ For example, the procurement process managed by the NRA is generally considered to have been very effective

³⁶ *Report of the Comptroller & Auditor General, 2011*

- The contention that incomplete information is being provided to contractors leading to inadequate pricing for risk; compounded by
- A lengthy and costly claims process³⁷;
- Excessive administrative burden even for small contracts; and
- Complications arising from submission of ‘abnormally low tenders’.

It was intended that the new contract would be reviewed after three years in operation (i.e. in 2010); however this was deferred due to a lack of project throughput at the time.

No.	Actions	Responsibility
16	Undertake, with the involvement of both Government and Industry stakeholders, a review of the current contract for public works and implement any changes if required to ensure fair and reasonable terms for all parties involved, and at the same time maintain the achieved levels of price certainty which are of benefit to all parties ³⁸ .	DPER

2. Driving further internationalisation

There is potential for further internationalisation of the construction sector in Ireland building on successes to date, leveraging specialist expertise and exploiting potential for collaboration. It is important from a business sustainability perspective that the sector achieves a more balanced portfolio across local and overseas markets - and where potential exists, that firms are in a position to capitalise on overseas market opportunities.

Building on the intensive engagement by Enterprise Ireland with prospective exporters within the sector, there is a need for continued focus on overcoming challenges associated with overseas market penetration. Of key importance over the period of this strategy will be to: strengthen management capability and market knowledge; and promote collaboration and the formation of consortia within the sector.

No.	Actions	Responsibility
17	Actively promote increased participation on long and short-term Client Management Development Programmes facilitated by Enterprise Ireland, with a particular emphasis on the <i>Management4Growth</i> programme and continue to support strategic company development through the <i>Business Accelerator</i> programme and Strategic Consultancy.	EI
18	Actively promote increased construction firm involvement in Enterprise Ireland’s ‘Marketing Sales Strategy Review’ process.	EI

³⁷ Accepting that this is not unique to public works contracts

³⁸ As of April 2013, the Minister for Public Expenditure and Reform has indicated to industry representative bodies that a review will be undertaken following a recommendation from the Government Construction Contracts Committee (GCCC). DPER is currently considering the format and timescale for the review

19	Develop and roll out a programme of construction sector specific workshops covering legal and other technical issues that firms encounter in overseas markets.	EI
20	Build on the emerging cluster of state organisations who have engaged with Enterprise Ireland and have developed /are developing an international aspect to their overall role and support them in developing a compelling value proposition to internationalise their offer.	EI & Relevant State Bodies

The action areas that follow, relating to competitiveness, innovation and skills development are also critical in strengthening prospects for success in international markets.

3. Embedding competitiveness and innovation

It is critical that the construction sector is positioned to embrace opportunities presented by the on-going evolution of the sector on a global level. Climate change and the green agenda challenge and increasingly require the sector to adapt buildings and products to meet energy performance and efficiency regulations and standards.

Technological advances in materials, construction methods, ICT (including building information modelling or BIM), and global communications are transforming all aspects of the sector from the development of new products and services to more efficient ways of working. In addition, the discerning and environmentally conscious consumer is demanding more from buildings and infrastructure in terms of design standards and functionality.

Maintaining a compliant and competitive offering against this backdrop is a concern for all enterprises involved in construction. This refers not only to firms that are operating in overseas markets; domestic construction activity and domestically produced materials and products are also increasingly subject to international competition.

Competitiveness involves cost considerations, but operating competitively in the sector today also requires adoption of new technologies and methods, and increasingly the ability to innovate. A competitive and innovative construction sector is also a factor in the location decisions around mobile enterprise investment (both FDI and indigenous). Local availability of construction expertise, high quality buildings, and advanced infrastructure, delivered at the right price and with efficiency can persuade the investor to establish/further invest in Ireland rather than elsewhere.

Construction costs

Not surprisingly, the cost of constructing in Ireland has declined substantially in recent years, primarily due to depressed demand and increased competition for construction contracts. It is important that increased cost competitiveness represents structural rather than cyclical shifts.

Labour costs in construction, while reduced, have not fallen by as much as might have been expected. Since the peak of the construction boom, hourly wage rates show an overall decrease of

6.85 percent (Q4 2009 to Q4 2012). Hourly wages have rebounded and have started to increase since Q2 2012³⁹.

Cost of living and inflation factors have an impact on the real wage for individuals as well as the potential for effective negotiation of wage reductions. It is critically important that there is a relentless pursuit of policies to improve cost competitiveness and to address the continuing high cost of living. In this regard, it is important that the impact of the new Industrial Relations Act 2012, in terms of promoting labour cost competitiveness, be assessed in due course as provided for under the Act.

The cost of building materials and aggregates has increased steadily during the recession. Although some of this is subject to world prices - e.g. steel, oil based products such as tarmac, pvc etc., increases in locally produced inputs such as aggregates and concrete have a material impact on the level of output deliverable within constrained development budgets.

Local Authority development levies remain characterised by inconsistency and lack of transparency as to how charges relate to economic costs, and continue to constitute a significant portion of the cost of development.

In the current depressed market, reduced construction costs have in some cases been insufficient to make development viable; for example within the office market in Dublin city, the cost of replacement/expansion of existing premises is often too expensive compared to the prevailing rents available on existing buildings.

To enhance the competitiveness of construction enterprises and ensure that construction costs are not creating a barrier to development, the following actions need to be taken.

No.	Actions	Responsibility
21	Introduce waivers/50 percent reduction in Local Authority development levies in line with current DECLG guidelines, in the context of the changed economic circumstances, the need to remain internationally competitive for investment, and the reduced cost of delivery of the required infrastructure for which levies are charged ⁴⁰ .	Local Authorities/DECLG
22	Local Authorities should develop more robust and transparent charging mechanisms for Local Authority charges in accordance with the economic cost of providing development, arising from the new guidelines on development contributions and acknowledging that the adoption of development contribution schemes is a reserved function of the elected members of each planning authority.	Local Authorities

³⁹ Source: CSO, *Earnings and Labour Costs Survey*. A recent ruling by the Labour court has sanctioned a 2.5 percent reduction in wage rates across the sector. CIF had sought a 20 percent reduction. The court also ruled that travel allowances in the sector should be reduced and rates paid to workers entering the sector be cut by some 12.8 percent, from €13.77 per hour to €12. (Ruling available at www.labourcourt.ie - ruling no. LCR20417, Nov 2012)

⁴⁰ New *Development Contribution Guidelines* were published by DECLG in January 2013, available at <http://www.environ.ie/en/Publications/DevelopmentandHousing/Planning/>

Innovation adoption and leadership

At the very least, in order to maintain competitiveness, Irish construction firms must comply with evolving (especially ‘green’) building/product regulations. Building a competitive edge challenges firms to work with new materials, embrace modern methods of construction, achieve and exceed international industry standards and become more efficient and productive - for example utilising Building Information Modelling (BIM) based integrated project management. This also involves developing closer relationships: with clients to better understand their needs; with other firms (including competitors) as potential collaborators; and with academic researchers, which can lead to the development of new innovative products, services and solutions.

The State as a major procurer of construction services has a role to play in creating demand for innovative solutions. The Green Public Procurement initiative⁴¹ is a key aspect in this respect, but there is also an opportunity to leverage the procurement process to stimulate development of new marketable and exportable products and services through pre commercial procurement⁴².

Alongside procurement, continued emphasis on developing management capability (cognisant of the small scale of most construction enterprises); fostering closer relationships between the industry and existing HEI research capabilities (and amongst firms); and driving increased adoption of Lean principles and ICT uptake, will be extremely important. These are the focus of the following actions.

No.	Actions	Responsibility
23	Continue promotion of the Enterprise Ireland Lean Start programme and advance construction companies onto the following stages, Lean Plus and Lean Transform.	EI, Industry Rep. Bodies
24	Work with industry organisations to promote the use of Building Information Modelling (BIM) and develop the appropriate technical skills amongst Irish construction firms so that they can successfully compete in markets where BIM is widely adopted or a requirement.	EI, Industry Rep. Bodies, HEIs, Skillnets
25	Accelerate engagement by construction sector firms with third level institutes and continue to promote available programmes including innovation partnerships and innovation vouchers to support R&D projects in collaboration with the third level sector.	EI, Industry Rep. Bodies, HEIs
26	Ensure that construction related researchers and the industry are engaged with the research prioritisation implementation process such that the needs of the sector are understood, current research strengths are recognised, and gaps in research capacity are identified.	DJEI, Enterprise Agencies & Industry Rep. Bodies

⁴¹ *Green Tenders: An Action Plan on Green Public Procurement*, Department of Environment, Community and Local Government & Department of Public Expenditure & Reform, 2012. Green Public Procurement Guidelines for Construction are currently in preparation by the OPW

⁴² *Pre-commercial procurement: Driving innovation to ensure sustainable high quality public services in Europe*, European Commission, 2007

27	<p>Launch a public sector pilot Market-Led Clustering Programme to stimulate collaboration between Irish based construction sector firms, other relevant industry sectors and the research community that would act as a demonstrator internationally of Ireland’s capabilities in pre-commercial product and service development, servicing national level policy goals particularly in the context of the Current National Reform Programme (especially Climate Change targets).</p> <p>Such a project should encompass activities through from applied research to pilot production (e.g. smart infrastructures or smart homes).</p>	DJEI & other relevant Govt. Departments
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The shadow economy

Shadow economy operators have a detrimental impact on legitimate construction businesses, undermining their capacity to compete and weakening their sustainability and potential to create jobs. Loss of revenue to the State has implications for everyone, while consumer and employee protection is also compromised. Shadow Economy activity also causes reputational damage to the sector and its perceived level of professionalism overall.

The shadow economy in construction ranges from businesses understating their sales/income, under declaring cash payments or paying employees ‘off the books’ in cash, to individuals doing ‘nixers’ either in addition to their normal taxed employment or while also claiming Dept. of Social Protection (DSP) payments. It also includes companies who are not compliant with labour regulations and/or not meeting prescribed wage rates for construction workers.

There is always an element of shadow economy within any jurisdiction and it is often exacerbated in times of economic recession and high unemployment⁴³. The nature of building and construction work (often cash based) and the current severe contraction in the volume of work (with increased competition for scarce contracts) in Ireland over the past six years suggests that the sector is likely to account for a significant share of shadow economy activity at the present time.

Tackling the shadow economy has had heightened focus in recent years. The DSP is currently implementing a *Fraud Initiative* which involves emphasis on inter-agency cooperation and focus on sectors and activities (especially cash based businesses) which pose the highest risk⁴⁴. The shadow economy is a stated corporate priority for Revenue, and a risk based approach supported by intelligence collation, data matching and streetscape operations is underway. Revenue has also made adjustments to the Relevant Contracts Tax and VAT (reverse charge) to promote tax compliance specifically within the construction sector.

Revenue and DSP work closely together through a High Level Liaison Group, on-going data exchanges, and on the ground joint investigations regionally and locally. The National Employment Rights Authority (NERA) is also involved in joint investigations with Revenue and DSP. Public procurement construction projects were amongst a number of specific joint investigations carried out in 2012 in conjunction with NERA and other compliance agencies and involved high visibility site visits and inspections on construction sites.

⁴³ Because of its nature the extent of shadow economy activity is difficult to measure accurately. A recent international study estimated the shadow economy in Ireland to be in the region of €20 billion or about 12.8 percent of GDP in 2012 (see Chapter 2)

⁴⁴ DSP Fraud Initiative 2011-2013: <http://www.welfare.ie/en/downloads/fraudinitiative2011.pdf>

The Hidden Economy Monitoring Group chaired by Revenue facilitates engagement with business and employee representative organisations and other state bodies on shadow economy developments. More recently, four regional monitoring groups have adopted a more localised response, and include representation from the construction sector⁴⁵.

Experience to date has demonstrated that without active co-operation (and sharing of intelligence) amongst all stakeholders, including the general public and industry, the work of State bodies such as Revenue is less effective in dealing with the shadow economy. The fact is that the shadow economy thrives where the environment is conducive, which includes instances where the consumer turns a blind eye.

More can be done to address cultural acceptance of shadow economy activity and promote collective responsibility. There are also opportunities to drive compliant behaviour. For example, statutory registration with the safety supervisory bodies for gas and electrical installers (RECI, ECSSA, and RGII⁴⁶) currently does not require contractors to demonstrate tax compliance. The action set out below is aimed at broadening the scope of responsibility to more effectively combat shadow economy activity in the construction sector.

No.	Action	Responsibility
28	Develop and implement an awareness/advertising campaign to communicate the issues and to highlight the positive impacts of a reduction of shadow economy activity on the Irish economy, jobs and society, as well as the negative consequences of dealing in the shadow economy for the consumer personally, utilising the construction sector as a key example.	Revenue, DSP, DJEI & Industry Rep. Bodies

4. Skilled to deliver

The dramatic contraction of the domestic industry has changed the construction skills landscape utterly; we have seen a collapse in new entrants, and an industry less attractive as a career option. It may be expected that the large numbers of unemployed qualified construction workers will be available to the sector when activity begins to grow again. However, the pace of recovery will be slow (see Chapter 3) and many individuals may turn to other employment options, re-training in other skills, and emigration in the short to medium term. It is plausible that the sector will encounter skills shortages (i.e. of the right skills) at a future point in time as a result of the current supply-demand configuration⁴⁷ and there is some concern about future capacity to deliver in the context of a return to growth.

It is also the case that many small construction enterprises are facing business challenges arising from the downturn that owner/managers are ill-equipped to deal with.

⁴⁵ While these groups have achieved a high level of cross agency engagement, they have been less effective in generating actionable leads for statutory bodies to pursue

⁴⁶ Register of Electrical Contractors in Ireland (RECI), Electrical Contractors Safety & Standards Association (ECSSA), and Register of Gas Installers Ireland (RGII)

⁴⁷ For example a survey of graduate employment trends in construction and property surveying undertaken by the Society of Chartered Surveyors Ireland indicated that the number of new graduates emerging from property and construction related courses will soon fall short of demand, *Graduate Employment Trends in Construction and Property Surveying*, SCSi, 2012

In the meantime developments in the green economy, including transposition of EU Directives geared towards meeting Climate Change 2020 targets are generating on-going need for up-skilling across the sector. The Recast Energy Performance of Buildings Directive presents a considerable challenge for the sector⁴⁸.

The drive to internationalise has exposed capability issues amongst an industry and its employees who to date were oriented in training and in career experience towards the local market. Competing internationally demands a high degree of professionalism overall, which extends across business processes, customer relationship management, financial management, project management and regulatory compliance.

Ensuring an appropriate quantity and quality of the upgraded skills and expertise needed for a competitive construction sector for the future necessitates a continued focus on the demand and supply requirements of the sector and the following key actions are recommended.

No.	Actions	Responsibility
29	Ensure that the review of the apprenticeship model recently initiated by the DES results in a model that can provide for the future needs of the construction industry in the context of a return to increased activity levels, and has an appropriate level of flexibility to deal with the cyclical nature of the sector (and apprenticeship registration) over the longer term.	DES, Industry Rep. Bodies
30	Ensure that the Build-Up Skills Ireland initiative progresses through to implementation of the road-map and actions to address skills gaps relating to the ‘greening’ of construction.	DES & DJEI
31	Undertake targeted promotion of the Skillnets pilot <i>ManagementWorks</i> management development training initiative for SMEs to the construction sector to maximise take-up from the sector which is currently low.	Skillnets, Industry Rep. Bodies
32	Ensure that all construction related undergraduate courses include compulsory modules relating to international business/sales and government tendering (in Ireland and overseas).	HEIs
33	Continue international graduate placement programmes that have received a strong industry endorsement including the Enterprise Ireland Graduates for International Growth programme, IBEC Export Orientation Programme and Farmleigh Fellowships, and actively promote to the construction sector.	EI, IBEC, Industry Rep. Bodies
34	Work with the Construction Enterprise Clearing House ⁴⁹ to facilitate a coordinated approach to defining the construction skills development agenda.	DES, SOLAS, Industry Rep. Bodies

⁴⁸ Refer to SEAI for additional information on the Recast EPBD at http://www.seai.ie/Your_Building/EPBD/

⁴⁹ See Action 35 below in relation to the establishment of a Construction Enterprise Clearing House (CECH)

5. Effective governance

The sector interacts with the Government system on a number of levels, for example; through the planning system and building regulations (DECLG); public procurement and PPPs (D Finance, DPER, NDFA); employment law, industrial relations and health & safety (DJEI and its agencies); and education & training (DES and its agencies)⁵⁰. It is important that oversight of the industry is informed by meaningful and timely data relating to the sector's performance.

A gap in terms of achieving overall coherence is the absence of a mechanism for collective engagement between Government and the industry on matters concerning the long-term development of the sector. This includes considerations about the ability of its constituent enterprises to serve emerging needs and markets (including the public capital programme); and relates to capability building (management development, green skills, Building Information Modelling etc.), cost competitiveness and innovation⁵¹.

This is critically important in terms of the State's interest as a major client of the sector, its interest in maximising the returns to the economy from construction activity in terms of jobs and value generation, and its interest in ensuring adequate provision of productive infrastructure and buildings to meet the needs of all sectors of the economy and society generally. Equally important is the need for a coherent industry voice on the developmental agenda for the sector.

No.	Actions	Responsibility
35	<p>Establish a <i>Construction Enterprise Clearing House</i> (CECH) - comprising senior officials from the key Government Departments (DJEI, DECLG, DPER, DFinance) and industry representatives from the main construction sub-sectors, and Enterprise Ireland. The CECH chair will be a matter for Government decision, and a joint chair is recommended. The CECH will inform on-going development of the sector and the coordination of relevant policies.</p> <p>The actions contained in this report will form the basis for an initial agenda for the CECH⁵².</p>	Government
36	Re-establish centralised collection and analysis of appropriate data indicators (previously undertaken by DECLG) which will facilitate effective monitoring of construction sector output with reference to optimum sustainability levels.	CSO, DECLG

⁵⁰ The Government's *Action Plan for Jobs 2013* tasks the Department of Finance with leading 'better cross-Government co-ordination of action on the property market' (Action no. 294)

⁵¹ Enterprise Ireland partially fulfils this role although its principal mandate is to promote increased internationalisation of the sector. Most construction enterprises fall outside its remit

⁵² Engagement with other EU member states in relation to the 'Strategy for the sustainable competitiveness of the construction sector and its enterprises' and emerging initiatives will also be an important consideration for the CECH; see Appendix 9

Conclusion

The dramatic and unprecedented transition of the Irish property industry from boom to bust has not only brought about a collapse of construction and related activity. Reputational damage has also been done, the extent of which is impossible to quantify, but is manifest in a number of areas, such as: a deterioration of standards⁵³ and perceived professionalism in some areas of construction; the role of high risk speculative development in the construction collapse; the reliability of property as a secure investment; the prospects for secure employment in construction and related activity; the aversion to speculative development; or confidence in the planning system. To varying degrees reputational damage has undermined the confidence of investors in the sector; it has also affected relations between the sector and Government; and it has impacted on the decisions of prospective new entrants to construction related education.

It is also important to bear in mind that a number of the issues raised in this report when considered collectively indicate that there is scope for a higher degree of professionalism overall within the sector and its governance - for example, firm level compliance with legal obligations in relation to employment law, taxation and building regulations; a more co-ordinated and responsive approach to skills development and innovation (including management capability); and a positive and more productive relationship between the industry and government in delivering the Public Capital Programme.

It is now opportune to establish better engagement between the industry and government, to achieve the ambition set out above (page viii) for the future sustainable development of the sector, with a firm focus on optimising the contribution of the sector to the economy, and building a degree of professionalism overall that ranks amongst the highest standards internationally.

⁵³ The high profile Priory Hall and 'pyrite' controversies are cases in point

1 Introduction

The construction sector has always been a major and essential contributor to the economy and society and continues to be vital to Ireland's future growth. It plays a dual role. Firstly, as a sector in its own right it provides regionally distributed jobs across a variety of occupations and skill levels, and is a key generator of wealth in the economy. Secondly, it provides and maintains the infrastructure and buildings on which every other industry and society depends. In this regard it is a crucial factor of competitiveness - underpinning enterprise investment and growth.

Although there is potential for increased internationalisation, the sector is strongly domestically focused. Whatever happens within the domestic marketplace continues to have a major bearing on the performance of the sector.

The sector has made a rapid and dramatic transition from unsustainable boom to bust, currently operating at a sub-optimal level. Having excelled in providing the high-spec industrial properties required of advanced sectors such as pharmaceuticals and ICT, and enhanced its capacity and capability to deliver complex infrastructure works as required under extensive public capital investment programmes, many skilled construction workers are currently unemployed or have left the sector either through emigration or transfer to other sectors of the economy.

The sector faces a tough challenge in seeking to return to a sustainable level of activity, in the context of an unprecedented national and international economic crisis. A continued low level of output creates a risk of further erosion of valuable construction sector expertise and capacity - impacting on competitiveness and compromising quality. It is imperative that every effort is made to ensure that recovery is accelerated.

Purpose of the report

The *Action Plan for Jobs 2012* asked Forfás and DJEI to 'develop, in consultation with stakeholders, a national strategy for the construction sector to 2015 outlining the opportunities, challenges and actions needed to realise the potential of the sector, to retain expertise in Ireland and to continue to develop capabilities over coming years'⁵⁴. This strategy frames a suite of actions that will support the sector in returning to sustainable growth so that it can once again fulfil its dual role effectively. They are focused on increasing certainty and removing barriers with respect to progressing infrastructure and building development in the domestic market; driving increased levels of internationalisation in the sector; reinforcing capability and competitiveness for the longer term; and enhancing the relationship between the industry and government.

Forfás has consulted extensively with the industry, construction sector representative bodies, the enterprise agencies, key government departments and bodies, and other stakeholders in developing the strategy. Collective discussion and input was garnered through a consultative grouping of industry representatives (Appendix 1).

Structure of the report

Chapter 2 provides an overview of the sector and key trends with respect to employment, contribution to the economy, and enterprise structure. Chapter 3 sets out the outlook for the domestic sector to 2015 and identifies areas of potential growth, as well as key barriers. Chapter 4 focuses on potential for increased levels of internationalisation within the sector in Ireland, while Chapter 5 underlines the importance of maintaining a focus on capability building and

⁵⁴ *Action Plan for Jobs, 2012* (Action no. 7.12.4 p114), DJEI, 2012

competitiveness for sustainable growth in the future. Finally, Chapter 6 identifies specific actions to accelerate the sector's recovery to an optimum level of output, to address challenges in relation to getting more from overseas markets and to reinforce capability and competitiveness in the sector for the longer term.

Construction sector - a definition

This report is first and foremost about the construction enterprise sector, which includes all activities directly involved in the development of the built environment. This includes professional services (incl. project management, quantity surveying, engineering, architectural services etc.), construction trades and contractors (building, electrical, carpentry etc.), as well as building materials manufacturers and suppliers. The property market, while inextricably linked to the construction sector, is not the primary focus of this report. It encompasses the sale, letting and transfer of land and buildings and ultimately determines to a large extent the level of activity undertaken by construction enterprises⁵⁵.

⁵⁵ The property market includes a range of activities including estate agents and auctioneering, banking and mortgage providers, property letting and legal services etc. as well as the actions and decisions of individuals and commercial entities as part of sale, purchase and letting transactions

2 The Irish construction sector today

Introduction

This chapter provides an overview of the construction sector in Ireland, including its contribution to the economy in terms of employment, value add, exports, and direct economy expenditure (DEE); and other characteristics such as enterprise size structure, occupational profile and geographical spread. Trend analysis is included where data is available.

Overall, the data illustrates the extent of significant decline in activity following a period of unsustainable growth. Despite its dramatic contraction in recent years, the sector continues to make a valuable contribution to the economy. It provides regionally distributed direct and indirect employment opportunities across a variety of occupations and skill levels. Although the bulk of activity is focused on the domestic market, there is potential for increased internationalisation - both aspects are important in terms of maximising the sector's contribution to the economy and the business environment (Chapter 3 sets out the outlook for the domestic sector to 2015)⁵⁶.

Employment

Direct employment

The phenomenal growth in construction employment over the past decade is widely known and documented. In the decade 1997-2007, direct employment in the construction sector more than doubled in size with peak employment achieved in Q2 2007.

Figure 2.1 Persons aged 15 years and over in Employment in Construction 1994-2012Q3⁵⁷



Source: CSO Quarterly National Household Survey 1998-2012; Labour Force Survey 1994-1998

⁵⁶ Both Chapter 2 and Chapter 3 draw on data analysis by DKM Economic Consultants prepared for Forfás as part of the background research for this Strategy

⁵⁷ Official CSO statistics relating to construction employment refer to NACE Rev 2 category 'F'. This category includes those employed in the complete construction of buildings, civil engineering works and other specialised construction activities as part of the construction process. Supporting activities such as architectural, engineering and project management are excluded from this classification

However, since then, there have been significant declines in employment (Figure 2.1). The economy has moved from a situation in Q2 2007 where construction employment accounted for approximately 13 percent of total employment to just 5.2 percent in Q1 2013. In the period 2008-2011 employment in construction declined by an average of 23 percent per annum. As of Q1 2013 employment in the construction industry stood at 96,300 representing a return to levels last seen in 1995.

There is no breakdown published of construction employment by sub-sector of activity⁵⁸. However, the building sector tends to be more labour intensive than the civil engineering sector. Historically, at the height of the construction boom, the rule used to ascertain the numbers employed in house building was 1.5 persons per dwelling. Therefore, of the 270,000 persons employed directly at the peak, an estimated 141,000 or 52 percent would have worked in the house building industry.

The majority of those employed in construction are aged between 25 and 55, and a sizeable proportion (7.5 percent) under 25 (higher than the average nationally of 5 percent). Only 15 percent possess a third level education (the average nationally is 45 percent), while 29 percent have not completed the leaving certificate, compared with 15 percent nationally (Table 2.1).

Table 2.1 Employment in construction by education level and age group, Q2 2012

	Less than higher secondary	Higher secondary or FET	Third level	Not stated or not applicable	Total
<25	*	3,900	*	*	4,800
25-54	20,200	44,500	12,900	*	78,800
55+	7,100	5,100	*	*	13,400
Total	27,900	53,500	14,300	*	97,000

All observations less than 3,000 are denoted by *. Those younger than 14 and/or age 65 and above are not included.

Source: Analysis by the SLMRU (FÁS) based on CSO QNHS data, Q2 2012 (2006 Census of Population weightings)

Occupational profile

The construction sector comprises an array of occupations from manual labourers, skilled tradespeople, to the professions. A detailed breakdown of employment across occupations is outlined in Table 2.2⁵⁹. The occupations selected are generally considered to be construction related, although some may fall within other sectors. Total employment for the selected occupations reached 132,000 in Q4 2010⁶⁰.

⁵⁸ The CSO does not publish a breakdown of persons in employment by sub-sector as persons (e.g. electrician, bricklayer, quantity surveyor) can work across the different segments of the industry

⁵⁹ There were also a number of occupations where there were fewer than 1,000 persons employed and the numbers were therefore deemed to be too small to be published. Such occupations included Town Planners, Architectural and Town Planning technicians, Building Inspectors, Building and Civil Engineering Technicians, Glaziers, Estimators and Valuers and Scaffolders, Riggers and Steeplejacks

⁶⁰ This figure is higher than the sectoral employment total given above since the occupational classification includes a broader set of activities linked to construction. Also some of these occupations may reside in sectors other than construction. Latest available data for which this classification of occupations is available under the SOC codes

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As regards trends in occupational employment; firstly it is evident that the greatest decline was amongst Bricklayers and Masons, where numbers employed fell over 81 percent from its peak. This was followed by Labourers and Plasterers which declined by 78 and 71 percent respectively.

Table 2.2 Construction employment - occupational Breakdown

Occupation	Employment at Peak ('000)	Peak Quarter	Employment Q4 2010 ('000)	% Change from Peak
Electricians, electrical maintenance fitters	30.7	Q3 2006	17.7	-42.3
Carpenters & joiners	45.9	Q2 2007	17.1	-62.7
Builders, building contractors	25.4	Q4 2007	11.4	-55.1
Plumbers, heating & related trades	17.3	Q1 2007	10.4	-39.9
Other building & civil eng. labourers	38.8	Q4 2006	8.4	-78.4
Civil/mining engineers	14.4	Q3 2007	8.3	-42.4
Painters & decorators	14.0	Q2 2007	6.5	-53.6
Construction and related workers	8.2	Q4 2007	5.6	-31.7
Plasterers	15.4	Q4 2007	4.4	-71.4
Building managers	8.2	Q1 2007	4.1	-50.0
Mechanical engineers	6.4	Q2 2008	3.9	-39.1
Bricklayers, masons	18.1	Q2 2006	3.3	-81.8
Electrical engineers	4.9	Q3 2007	3.2	-34.7
Road construction & maintenance workers	4.5	Q3 2007	3.1	-31.1
Architects	7.7	Q3 2006	3.0	-61.0
Roofers, slaters, tilers, sheeters, cladders	8.2	Q4 2006	2.7	-67.1
Cabinet makers	5.2	Q4 2007	2.1	-59.6
Other plant, machine, process operatives.	7.0	Q3 2005	2.1	-70.0
Engineering technicians	2.2	Q1 2009	2.0	-9.1
Quantity surveyors	4.3	Q1 2007	2.0	-53.5
Building, mining and other surveyors	2.5	Q4 2006	1.5	-40.0
Property, estate managers and proprietors	1.5	Q4 2006	1.5	0.0
Steel erectors	2.9	Q2 2005	1.4	-51.7
Floorers & covers, carpet, tile fitters	3.6	Q1 2006	1.2	-66.7
Draughtspersons	2.8	Q2 2008	1.1	-60.7
Other construction trades	8.0	Q3 2007	4.0	-50.0
Total Employment	308.1		132.0	-57.2
<i>of which:</i>				
Construction Professions	43.9		25.4	-42.1
Construction Trades	183.6		77.1	-58.0
Other	80.6		29.5	-63.4

Source: CSO Quarterly National Household Survey (Occupation Class UK SOC 1990)

In contrast, Engineering Technicians experienced a fall of just over 9 percent from the peak, while employment amongst Property Estate Managers and Proprietors actually increased during 2010 and reached 1,500 in Q4 2010. Overall, the data shows that while employment in both construction trades and professions declined substantially since the peak, construction trades were hardest hit, falling by 58 percent. The declining numbers employed in construction in part reflects those leaving the sector for other occupations and those emigrating.

Table 2.3 Labour force in construction occupations 2006 and 2011

Occupations	2006	2011	(%) Change	Absolute Change
Carpenters and joiners	37,769	29,937	-20.7	-7,832
Other building and civil engineering labourers	37,234	24,737	-33.6	-12,497
Electricians and electrical maintenance fitters	25,726	20,359	-20.9	-5,367
Plumbers, heating, ventilating engineers and related	15,965	15,012	-6.0	-953
Builders and building contractors	17,119	12,939	-24.4	-4,180
Painters and decorators	12,652	11,416	-9.8	-1,236
Bricklayers and masons	15,645	10,004	-36.1	-5,641
Plasterers	13,641	9,626	-29.4	-4,015
Mechanical plant drivers/operatives and crane drivers	12,632	9,272	-26.6	-3,360
Pipe layers/pipe jointers and related	9,788	9,248	-5.5	-540
Welders and steel erectors	9,028	7,524	-16.7	-1,504
Civil and mining engineers	6,858	6,217	-9.3	-641
Architects, town planners and surveyors	6,819	6,123	-10.2	-696
Road construction workers and kerb layers	8,802	6,067	-31.1	-2,735
Scaffolders, riggers, steeplejacks and other trades n.e.s.	6,614	5,736	-13.3	-878
Building managers	6,351	5,250	-17.3	-1,101
Floorers, floor coverers, carpet fitters and planners, tilers	2,944	4,763	61.8	1,819
Sheet metal workers	3,152	3,652	15.9	500
Cabinet makers	4,055	3,454	-14.8	-601
Building inspectors and quantity surveyors	3,203	2,908	-9.2	-295
Roofers, slaters, tilers, sheeters and cladders	6,347	2,528	-60.2	-3,819
Architectural, town planning, building and civil eng. technicians	3,078	2,441	-20.7	-637
Draughtspersons	2,497	2,227	-10.8	-270
Glaziers	1,156	1,064	-8.0	-92
Rail construction and maintenance workers	548	404	-26.3	-144
All construction related occupations	265,568	209,454	-21.1	-56,114

Source: CSO *Census 2011* (Occupation Class - UK SOC 1990)

An analysis of the labour force across construction related occupations for the Census years 2006 and 2011 gives an indication of the range of skills being lost to the sector either to retirement, retraining, moving to other sectors of employment or emigrating (Table 2.3). The largest decline in the labour force was in relation to those linked to the surge in house building including Roofers, Slaters, Tilers, Sheeters and Cladders which fell almost 60 percent over the 2006-2011 period. This was followed by Bricklayers and Masons occupations which fell over 36 percent. In absolute terms, the largest decline in the labour force occurred among Other Building and Civil Engineering Labourers which declined almost 12,500 and Carpenters which fell by approximately 7,800. In total, approximately 56,000 individuals with construction related occupations have left the labour force in the 2006-2011 period, equivalent to 1 in 5 persons employed at the peak.

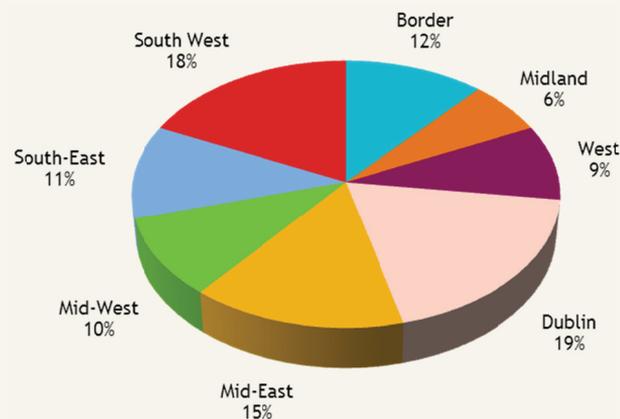
Indirect employment

Construction has an extensive multiplier effect in the Irish economy. Based on an analysis of the CSO Input-Output tables and GVA figures, an average employment multiplier for the Irish construction industry has been estimated as 0.50⁶¹. Combining this multiplier with the figures for direct employment, at the peak (Q2 2007) almost 405,000 persons were in construction related employment compared with an estimate of 144,450 in Q1 2013. This represents a total decline of 64 percent over the period.

Regional distribution

Employment in construction is regionally dispersed which is an important characteristic in the context of its employment creation potential or the impact throughout Ireland on levels of unemployment. The contraction in employment over recent years has been felt across all regions and recovery is likely to be slower in the regions beyond Dublin and the Mid-East.

Figure 2.2 Proportion of construction employment across regions, Q3 2012



Source: CSO Quarterly National Household Survey

⁶¹ DKM Economic Consultants analysis for Forfás. A different employment multiplier is computed for each year, reflecting the different mix of activity annually. The average employment multiplier for the period 2006-2010 is 0.57 but in 2011, the multiplier fell sharply to 0.46, possibly reflecting the fall off in locally sourced purchases by the sector. For the purposes of showing indirect employment historically, and recognising that it may be different each year, an average employment multiplier of 0.50 was used to derive indirect employment

Whilst Dublin experienced the greatest fall in construction employment in absolute terms, it remains the region with the greatest proportion of current construction employment (Q3 2012) at 19 percent. It is followed closely by the South West which accounts for 18 percent, reflecting the location of our two main population centres.

The decline in construction employment appears to have impacted peripheral regions first with the West and South West reaching peak employment in Q3 2006 compared to Dublin which reached peak employment in Q4 2007 (Table 2.4). While these regions experienced the impact of the downturn at an earlier stage, the greatest declines in employment from peak were experienced in the West (almost -70 percent), Midlands, Dublin and South-East (all c. -67 percent).

Table 2.4 Construction employment by region

	Peak Quarter	Peak Employment	Current Employment (Q3 2012)	% Change from Peak	Employment Share (Q3 2012)
Border	Q4 2006	33,400	11,700	-65.0	11.6
Midland	Q3 2007	19,900	6,500	-67.3	6.4
West	Q3 2006	30,300	9,200	-69.6	9.1
Dublin	Q4 2007	58,400	19,200	-67.1	19.0
Mid-East	Q3 2006	34,000	15,000	-55.9	14.8
Mid-West	Q1 2007	23,400	9,900	-57.7	9.8
South-East	Q2 2007	34,900	11,500	-67.0	11.4
South West	Q3 2006	44,600	18,200	-59.2	18.0

Source: CSO *Quarterly National Household Survey (Q3 2012)* (2011 Census of Population weightings)

Unemployment

As of Q1 2013, unemployment in construction accounted for approximately 20 percent of all unemployment (36 percent for males), significantly higher than any other sector⁶².

Recent trends indicate that there may be a downward move in the numbers unemployed, having fallen from 80,200 in Q1 2010 to 58,500 in Q1 2013⁶³. Employment levels in construction have also declined over the same period, indicating that the former construction unemployed are not returning to jobs in the construction sector but are reducing in number due to factors including retirement, emigration, employment in other sectors, or returning to education. Unemployment in the sector, while reducing, is at such a level as to remain a major challenge for Government at least over the medium-term.

The average duration of unemployment for those who worked in the construction sector has increased in recent years (Table 2.5). Since Q1 2009 there has been a significant increase in the average duration of unemployment rising from 8.4 months in Q1 2009 to almost 29 months in Q1 2012. Long-term unemployment is generally classified as unemployment lasting over a year. The average duration for unemployed construction workers has been above this level since 2010. Such long term unemployment increases the risk of social exclusion and has implications both financially for the Exchequer and for retraining agencies.

⁶² Latest available CSO unemployment data for construction (percentage male unemployment based on Q1 2012)

⁶³ CSO QNHS, *Unemployment Thematic Report* updated tables (Q12005 to Q1 2013), special calculation for Forfás

Table 2.5 Unemployment and average duration among construction workers

	Average Duration of Unemployment (Months)	Numbers Unemployed ('000s)	% change in Numbers Unemployed
Q1 2005	18.3	10.6	
Q1 2006	17.1	12.7	19.8
Q1 2007	14.8	14.3	+12.6
Q1 2008	13.4	22.2	+55.2
Q1 2009	8.4	64.5	+190.5
Q1 2010	14.8	80.2	+24.3
Q1 2011	22.2	78.3	-2.1
Q1 2012	28.8	73.7	-6.1
Q1 2013	<i>not available</i>	58.5	-20.6

Source: CSO QNHS, *Unemployment Thematic Report* updated tables (Q12005 to Q1 2013, CSO special calculation for Forfás)

Enterprise profile

The construction industry comprised approximately 40,500 enterprises in 2010⁶⁴. Trends indicate that the number of enterprises in the sector has decreased by approximately 34 percent over the five year period to 2010.

Table 2.6 Number of active enterprises in construction sector, 2006-2010

	2006	2007	2008	2009	2010
No of Active Enterprises	61,194	61,082	57,042	46,655	40,459
(%) Change Active Enterprises		-0.2	-6.6	-18.2	-13.3

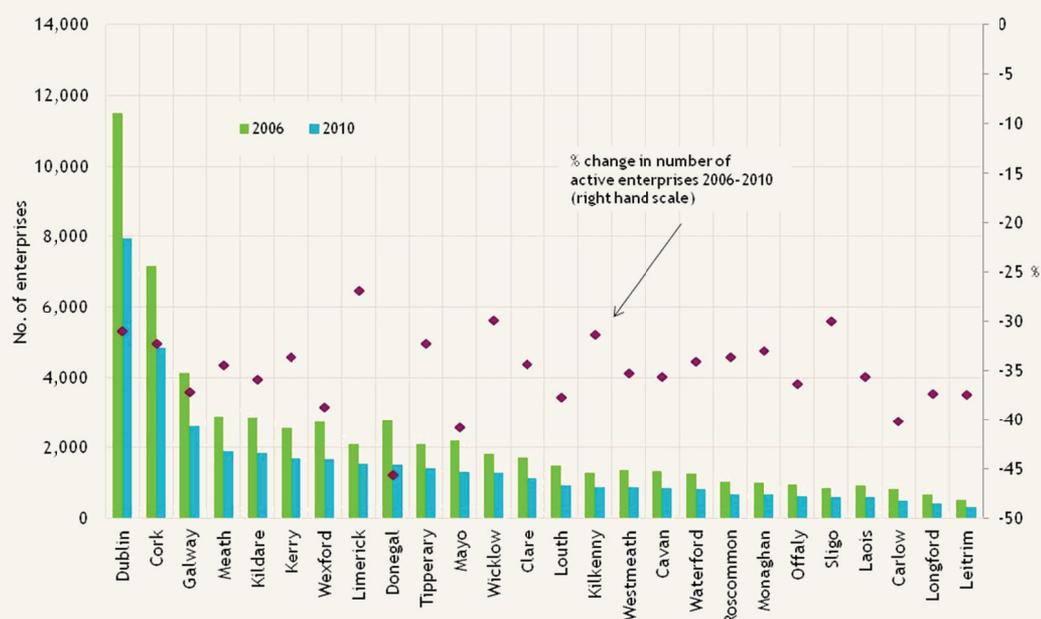
Source: CSO Business Demography

Figure 2.3 shows the number of enterprises registered in the various counties of Ireland in 2006 and 2010⁶⁵. As can be seen, there has been a substantial decline in the number of enterprises operating across the country. However, the greatest decline in active enterprises occurred in Donegal (-45.6 percent), Carlow (-40.7 percent) and Mayo (-40.2 percent). On average in the four year period to 2010, the number of construction enterprises fell by 34 percent.

⁶⁴ CSO *Business Demography* available at <http://www.cso.ie> (Statbank database). Business Demography data is based on enterprises that are registered with the Revenue Commissioners (2010 is latest available year)

⁶⁵ 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 2.3 Active construction enterprises by county, 2006 and 2010



Source: CSO Business Demography

Size structure of the construction sector

The construction industry has traditionally been a very fragmented sector with the vast majority of firms having less than 10 persons engaged (Table 2.7)⁶⁶. Its structural composition has remained substantially unchanged in the past number of years despite the recession. There has been a consistent pattern of decline in the numbers of enterprises across all size classes over the 2006-2010 period.

Table 2.7 Active construction enterprises by size class (no. of persons engaged)

Persons Engaged	2006	2007	2008	2009	2010
Under 10	57,439	57,302	54,083	44,903	39,151
10 - 19	2,393	2,383	1,895	1,103	856
20 - 49	974	1,022	755	486	343
50 - 249	359	344	281	147	98
250 and over	29	31	28	16	11
Total	61,194	61,082	57,042	46,655	40,459

Source: CSO Business Demography

⁶⁶ Persons engaged includes employees, proprietors and family members. Employees are persons who are paid a fixed wage or salary. Proprietors and family members; included here are those proprietors, partners etc. and members of their families who work regularly in the firm and are not paid a definite wage or salary. The average number of persons engaged and or employed may be less than one, as employment is calculated on an annualised equivalent basis, so if an Enterprise was established midyear with one employee, this would be counted as 0.5

The total number of firms employing 20 persons or more declined by 67 percent in four years. The largest decline (-73 percent) was recorded for firms comprising between 50-249 persons engaged, an indication of on-going restructuring as medium to large companies downsize and small new enterprises emerge. In 2006, approximately 94 percent of enterprises had less than 10 employees engaged, while by 2010 the proportion had increased to almost 97 percent.

Table 2.8 New construction enterprises, 2006-2010

	2006	2007	2008	2009	2010
No of New Enterprises	5,717	3,824	2,489	2,278	1,818
(%) Change New Enterprises		-33.1	-34.9	-8.5	-20.2
Average Number of Persons Engaged	1.0	1.1	1.1	0.9	0.8
Average Number of Employees	0.2	0.3	0.4	0.2	0.2

Source: CSO *Business Demography*

There has been a threefold decline in the number of new enterprises over the period falling from 5,717 in 2006 to 1,818 in 2010 (Table 2.8). Furthermore, it is evident that the numbers engaged and employed in new enterprises are low and have fallen over time. This is particularly evident in the 2008-2010 period when average employee numbers fell from 0.4 in 2008 to 0.2 in 2010. This trend likely reflects the fact that new enterprises are largely individually owned and operated.

Table 2.9 Survival rates of new construction enterprises

	New Enterprises	No. Surviving in 2010	(%) Surviving in 2010
2006	5,717	3,419	60
2007	3,824	2,372	62
2008	2,489	1,769	71
2009	2,278	1,785	78

Source: CSO *Business Demography*

Looking at the survival rate of new enterprises, only 60 percent of new construction enterprises established in 2006 survived the four years to 2010 (Table 2.9) - four percent less than the average nationally. The one year survival rate of new enterprises has declined substantially over time. Just over 81 percent of enterprises established in 2009 were still in operation a year later, compared with 90 percent between 2006 and 2007. Of the new construction enterprises established in 2009, 78 percent survived the one year to 2010 compared to 90 percent of the new construction enterprises established in 2006 which survived to 2007. These trends indicate the particularly challenging times for small businesses generally at the present time, including construction.

Insolvencies in construction

Figures on the number of Creditors' Voluntary Liquidations, High Court Liquidations, Receiverships and Examinerships are compiled by RSM Farrell Grant Sparks⁶⁷. The latest figures show that there were 1,036 corporate failures in the first six month period of 2012, representing an increase of 8 percent on the same period in 2011 (Table 2.10).

The demise of the property and construction sector continued to dominate the figures with 46 percent (475) of all failures in the sector, compared with 39 percent in 2010 and 36 percent in 2011. The data also show that the failures in property and construction are no longer restricted to medium sized developers and/or sub-contractors, with a number of high profile collapses in 2012.

Table 2.10 Corporate failures in property, construction and engineering

6 months ended/ Number of cases	June 2010	June 2011	June 2012
Property, Construction and Engineering (PCE)	360	351	475
Total	912	963	1,036
PCE as % of Total	39.5	36.4	45.8

Source: RSM Farrell Grant Sparks

In terms of the overall number of corporate failures, Dublin accounted for 47 percent in the first six months, followed by Cork (10 percent), Limerick (6 percent) and Galway (5 percent). Three sectors, namely Property and Construction, Hospitality and Retail, between them accounted for in excess of 70 percent of all failures compared with 65 percent for the same period in the previous two years.

Construction output (domestic)

The official publication on output in the construction industry, the annual *Construction Industry Review and Outlook* (CIRO) was produced by the Department of the Environment, Community and Local Government for around 25 years until 2010⁶⁸. It is one of three measures of construction output, two of which are published by CSO National Accounts (see Box 2.1 below)⁶⁹:

The most appropriate measure of the net contribution of the construction sector to the Irish economy is the value added measure, which is the wages and profits earned by employees and firms in the industry. In value added terms the industry represented just under 2 percent of GNP in 2010 and 2011 compared with 11.1 percent in 2006. This compares with the value added by

⁶⁷ News Release, RSM Farrell Grant Sparks, 10th July 2012

⁶⁸ The last publication of the CIRO in October 2010 is available at <http://www.dkm.ie/uploads/pdf/reports/2010%2010%20CIRO%20FINAL%20REPORT.pdf>

⁶⁹ Output and value added in the sector are measured according to the statistical classification of economic activities used in the European Union, the NACE codes, which impose the use of the classification uniformly across all member States. The current classification used is NACE Rev. 2 with construction classified under Section F which covers Divisions 41-43. The output measures given here include the value of inputs provided by other activities such as professional firms (architectural services, engineering services, drafting services etc.)

agriculture at 3.1 percent of GNP and industry (excluding building and construction) at 27.5 percent of GNP.

In gross output terms (CIRO measure), the construction industry represented one quarter of GNP at the peak (2006) but had declined to around 7 percent by 2011 (Table 2.11).

Box 2.1 Alternative Measures of Construction Output

The **CIRO gross output** measure includes the value of new work which was defined as the value of work put in place on the construction of buildings and structures and on civil engineering and land improvement projects. Output was valued inclusive of VAT at the building services rate where this is chargeable or, in the case of output of non-VAT registered bodies including direct labour units and individuals, output is valued inclusive of VAT on material inputs. Data which would allow the exclusion of deductible VAT is not readily available. The CIRO measure also included the value of output generated from repair and maintenance projects. This measure captures domestic activity by construction firms only.

The **Investment measure**, which is included under the Gross Domestic Fixed Capital Formation component of Irish GNP. It captures expenditure on renewal, replacement and major reconstruction work but does not include repair and maintenance of existing physical assets. The latter is included in the CIRO measure.

The **Value Added** measure represents the remuneration of employees in addition to all elements of earnings (from employers' contribution to social insurance) as well as profits in the case of all concerns engaged in building and construction. Value added is defined as the value of the goods and services produced (output) less the cost of goods and services (not including labour costs) used in the production process (i.e. intermediate consumption or purchases).

All three measures are included in Table 2.11 below.

Overall construction output - baseline position and trend

The overall value of construction output (new and RM&I⁷⁰) is estimated at €8.1 billion for 2012 (Table 2.11). This is 14.1 percent below the corresponding value in 2011 or 15.3 percent in volume terms after allowance is made for construction inflation (1.4 percent).

Table 2.11 Measures of building and construction output (current prices)

	CIRO* Measure €m	% of GNP	Investment Measure €m	% of GNP	Value- added Measure €m	% of GNP	GNP Current €bn.
2006	38,631	25.0	38,037	24.6	17,138	11.1	154.5
2007	38,601	23.8	36,583	22.6	15,437	9.5	162.2
2008	32,593	21.2	28,889	18.8	10,967	7.1	153.6
2009	18,048	13.6	16,756	12.6	5,114	3.8	132.9
2010	12,189	9.4	10,756	8.3	2,414	1.9	130.2
2011	9,408	7.4	8,800	6.9	2,400	1.9	127.0
2012E	8,079	6.4	7,400	5.8	2,200	1.7	126.8
Contraction in value terms (%):							
2006-2012	-79.1		-80.5		-87.2		-17.9

* CIRO = Construction Industry Review and Outlook to 2010, DKM estimates for 2012.

Sources: DECLG, CSO *National Income and Expenditure*, and DKM Economic Consultants

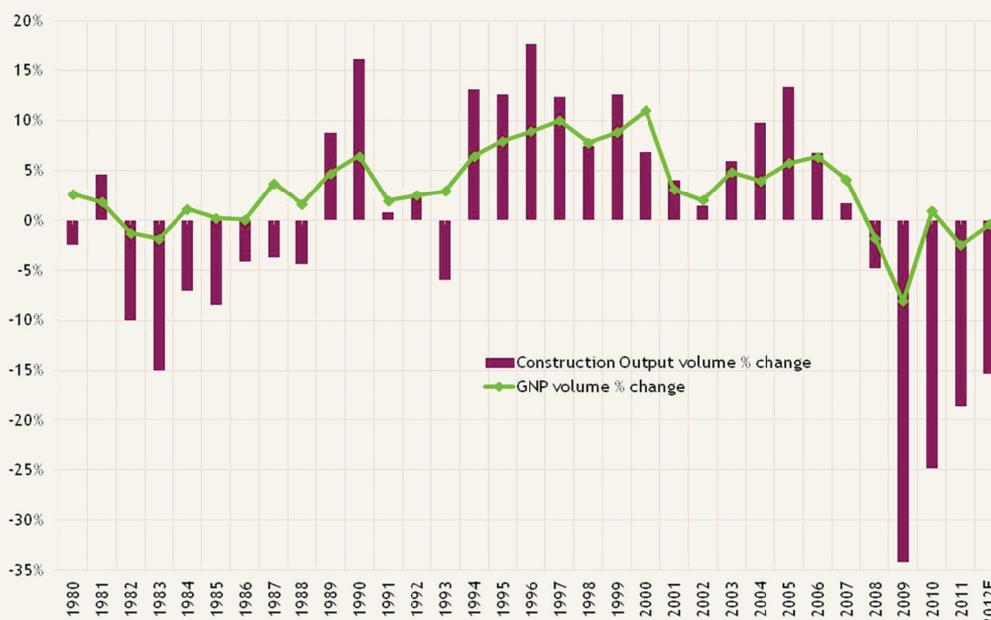
⁷⁰ RMI - Repair, Maintenance and Improvement

Construction activity is cyclical in nature, as activity levels fluctuate over time in response to positive and negative factors which respectively encourage or discourage construction activity.

The very buoyant period from 1995 to 2007 was unique in that a range of factors co-existed which generated record levels of construction activity across all of the broad categories of work, including: a range of property-based reliefs⁷¹, low interest rates, strong employment growth, high immigration levels, aggressive bank lending etc. (many of the reliefs in place have already been abolished). An exceptional amount of new residential and non-residential buildings and infrastructure was put in place in that time. However, there was also substantial overbuilding in the period, which was accompanied by rampant construction inflation. By 2007, the economy had become increasingly reliant on construction and the industry had overshot what would be considered a ‘normal’ level of output, reaching 25 percent of GNP at the peak in 2006.

The subsequent “boom to bust” development in the Irish construction sector over the past five years has equally been unprecedented. The industry is currently going through a difficult transition back to a situation where more ‘normal’ conditions can prevail and supply and demand levels can move back towards equilibrium.

Figure 2.4 The economic and construction cycle



Source: CSO National Income and Expenditure and CIRO to 2010 and DKM estimates 2011-2012

Generally, the fluctuations in construction activity somewhat mirror the broader economic cycle. However, for Ireland, it is evident that construction output over the past four years represents an over correction when trends in GNP are examined. Following an average annual growth in GNP of 5.8 percent over the decade 1997-2007, the Irish economy experienced the most severe economic

⁷¹ These reliefs included capital allowances for the construction of a range of building types, including hotels, private hospitals, sports injury clinics, nursing homes, third level educational buildings, student accommodation (Section 23), multi storey car parks and certain rented residential properties

downturn on record. In the four years 2008-2011 inclusive, the economy contracted by 11.1 percent. A combination of factors was responsible, notably the international downturn, an overvalued property market, the related difficulties in the banking sector, the deterioration in the public finances and a loss of competitiveness. The latest economic data show that real GNP increased by 3.7 percent in Q3 2012 on the previous quarter and, in year-on-year terms, the economy registered an increase of 3.7 percent.

It is clear looking at Figure 2.4 that the scale and speed of the current contraction is the most severe in the last thirty years and significantly out of kilter relative to recent trends in GNP. This also indicates that the construction sector is currently operating well below its optimum level (discussed in Chapter 3)⁷².

The sectoral composition of construction output

The construction sector is broadly defined as comprising three sub-sectors and each in turn captures investment in new buildings and infrastructure and expenditure on repair, maintenance and improvement (RM&I) of the existing building and infrastructure stock.

- **Residential building** - comprises private and public investment in new house building and in the repair and maintenance of dwellings by households, local authorities and voluntary or non-profit housing bodies.
- **Non-residential building** - captures private sector investment in new industrial, office, retail, tourism and agricultural buildings and all other building undertaken by the private sector. Public sector non-residential buildings, otherwise classified as social infrastructure, captures investment in public buildings funded by the public capital programme and generally covers investment in health, education, public buildings such as, for example, public sports facilities, local authority accommodation, garda and fire stations, prisons and libraries.
- **Productive infrastructure** - relates to investment in infrastructure/civil engineering, which is predominantly funded by the public sector, and 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.

For the purpose of the commentary that follows, public non-residential buildings and civil engineering infrastructure are discussed under one heading, i.e. Public Sector Construction.

Residential construction:

The value of residential construction output is estimated by multiplying house completions (used as a proxy for housing output) by the value of output, which is the average new house price net of land costs. The substantial contraction in the volume of new residential construction since the peak - almost 75 percent - is mirrored in virtually every other housing indicator which is currently well below what would be considered to be 'normal' activity levels. Such indicators include the number of planning permissions (down 85 percent from peak in 2007), housing commencements (down by 94 percent from peak in 2005 to 2011), the number and value of mortgage transactions

⁷² For a full discussion on the construction industry cycle see *Submission to the Government by the Construction Industry Council: Jobs and Infrastructure a Plan for National Recovery* (2009)

(down by 87 percent and 94 percent respectively). Residential property prices are down by almost 50 percent from 2007 peak to November 2012)⁷³.

Table 2.12 Value and volume of construction output, 2010-2012E

	2010	2011	2012E	2010	2011	2012E	2010	2011	2012E
	Current prices €m			Constant 2010 prices €m			Annual % change		
Residential Construction									
Private Housing	4,409	3,725	3,168	4,409	4,139	3,520	-21.0	-6.1	-15.0
Public Housing	969	762	384	969	847	427	-15.4	-12.6	-49.6
Sub Total	5,378	4,487	3,552	5,378	4,986	3,947	-20.0	-7.3	-20.8
Private Non-residential Construction									
Industry	169	198	339	169	196	324	-70.9	15.9	65.9 *
Commercial	250	195	216	250	192	207	-76.6	-23.1	7.6
Agricultural	150	120	87	150	124	90	-44.6	-17.5	-27.5
Tourism	66	35	31	66	35	31	-75.3	-46.6	-12.9
Worship	35	27	21	35	27	21	11.1	-20.8	-22.7
Sub Total	670	575	694	670	574	673	-69.8	-14.2	17.2
Productive Infrastructure									
Roads	1,345	932	809	1,345	937	799	-38.5	-30.3	-14.7
Water Services	983	788	661	983	800	663	-4.1	-18.6	-17.0
Airports/Seaports	117	79	61	117	79	60	-74.3	-32.2	-24.4
Energy	1,300	907	1,000	1,300	911	986	20.1	-29.9	8.3
Transport	485	325	250	485	327	248	-7.4	-32.7	-24.1
Communications	240	150	123	240	151	121	-6.0	-37.2	-19.7
Sub Total	4,470	3,180	2,903	4,470	3,204	2,878	-19.2	-28.3	-10.2
Social Infrastructure									
Education	825	623	507	825	618	492	23.6	-25.1	-20.5
Health	348	328	277	348	323	266	-15.2	-7.2	-17.8
Public Buildings	261	97	80	261	97	79	-20.1	-62.8	-18.7
Other Social	237	118	66	237	116	63	-32.0	-51.2	-45.2
Sub Total	1,671	1,166	930	1,671	1,154	900	-4.7	-30.9	-22.1
Total All Construction	12,189	9,408	8,079	12,189	9,919	8,397	-24.9	-18.6	-15.3
<i>Of which</i>									
New Construction	7510	5164	4,336	7,510	5,293	4,311	-31.9	-29.5	-18.6
RM&I Construction	4679	4244	3,743	4,679	4,625	4,087	-10.0	-1.1	-11.6

Source: DKM Economic Consultants analysis for Forfás, 2012

Note: The above estimates exclude activity in the black economy which is covered in the next section.

* The sharp upward movement in the volume of industrial construction in 2012 is due to a revision to the value of industrial construction output in 2102 to reflect increased activity in the FDI sector, and is thus not comparable with the 2011 outturn.

⁷³ DECLG Housing Statistics, available at <http://www.environ.ie> and *Residential Property Index*, CSO, November 2012

The value of investment in private housing repair and maintenance reflects estimates from a CSO survey (unpublished) of consumer expenditure on major house improvement works and minor repair and maintenance works. The CSO has revised upwards the estimates for housing RM&I⁷⁴ which are included in the output estimates in Table 2.12 for residential construction.

In regard to residential investment by the public sector, the deterioration in the public finances since 2008 has changed the position with respect to the public capital budgets for housing over recent years. The total public capital allocation for housing has declined from €2.2 billion in 2008 to an estimated €1 billion in 2012, 56 percent of which is allocated for house purchase and improvement loans, including funding for the Housing Finance Agency⁷⁵.

The housing market is in its sixth year of contraction in 2012 and remains in an exceptionally weak position. Adjustment is continuing back towards a more 'normal' market.

The main factors influencing the lack of activity in the housing market in recent years:

- a. **Consumer confidence:** Trends in the ESRI/KBC Consumer Sentiment Index, which although on an upward trend for much of 2012 remains well below historical average levels. In the context of the series of austere budgets, consumers have remained cautious. House prices have been on a continuous downward track since December 2007 (although small monthly increases were recorded again in mid-2012).
- b. **Lack of access to credit:** For those seeking mortgages, coupled with an unwillingness amongst households to seek funding at this time due to low confidence, lack of access to credit has been, and remains, a substantial barrier to transactions. Recent data reported from the Department of Finance shows that 62 percent of mortgage applications in 2011 were approved by the main lending institutions. The proportion actually drawn down may be lower, depending on whether the amounts approved were sufficient to allow the transactions to take place. However data on mortgage transactions from the Irish Banking Federation⁷⁶ for Q2 2012 is encouraging and shows a stabilisation in the number of mortgage drawdowns involving a property transaction at 5,050 in the first six months of 2012.
- c. **Build-up of new unsold stock:** The build-up of new unsold stock (complete and vacant) was estimated by the DECLG⁷⁷ at 18,638 in 2011 or close to 1 percent of the total housing stock. The counties of Leitrim, Longford, Cavan, Sligo, Roscommon and Laois had the highest number of vacant units, at in excess of 26 units per 1,000 of the population while urban areas such as Limerick City, Galway City and Waterford City and Wicklow had five or less units vacant per 1,000 of the population.
- d. **Vacant Units:** The most recent results from the 2011 Census estimated the total vacancy rate (new and second-hand) across the housing stock at 14.5 percent including holiday homes or 11.5

⁷⁴ The CSO revised their question regarding expenditure on minor repair works in 2011 compared with previous years. The result is quite a large upward revision to minor improvements which accounts for the upward revision to the output estimates in 2010 (also revised), 2011 and 2012 compared with estimates previously reported in the SCS1 report, *The Irish Construction Industry in 2012*

⁷⁵ The social housing leasing initiative introduced in 2009 which involves Local Authorities leasing properties from private property owners further reduces the need for new build

⁷⁶ <http://www.ibf.ie/gns/publications/research/researchmortgagemarket.aspx>

⁷⁷ <http://www.environ.ie/en/Publications/DevelopmentandHousing/Housing/HousingSurvey2011/>

percent excluding vacant holiday homes. The typical vacancy rate in a normally functioning market is about 5-6 percent.

- e. **Negative equity and mortgage arrears:** These are key constraints in the housing market, the latter reflecting the difficult economic and financial circumstances facing households at present. Recent estimates from the Central Bank show that 86,146 (11.3 percent) of private residential mortgage accounts were in arrears over 90 days at the end of September 2012, up from 81,035 accounts (10.6 percent) as at the end of June. A total of 49,482 mortgage accounts were in arrears of less than 90 days at the end of September 2012, compared with 45,165 as at the end of June⁷⁸.

Other research undertaken by the Central Bank (Kennedy and McIndoe Calder, 2011) on the residential mortgage books of the four main credit institutions estimated the number of households in negative equity at 31 percent of mortgaged properties, representing over 47 percent of the outstanding mortgage loan balances at the end of 2010⁷⁹.

The implications for house building activity are such that the number of new dwellings built is expected to plunge to an all-time low level of just 4,500 units in 2012⁸⁰ or just around 1 dwelling per 1,000 of the population, compared with an average of eight dwellings in the 1990s and almost 15 in the 2000s.

Non-residential construction:

The private non-residential building sector has seen the value of construction output collapse from unprecedented levels reached during the boom years. The total value of new industrial, office, retail and other private sector buildings put in place reached almost €6 billion in 2007. Since then the on-going economic challenges have taken their toll on private non-residential construction activity. The volume of new private non-residential development activity fell to very low levels in 2011 and is expected to decline further to an estimated €605 million in 2012. This is a reflection not just of the adverse economic climate over recent years, which has dented confidence amongst developers, but also the level of vacant commercial stock and difficulties accessing finance.

Information on activity levels in the private non-residential market is available from regular Market Reviews carried out by the main property agents⁸¹. The following trends were reported in the Dublin office market⁸² in Q2 2012:

- A complete lack of new office development in Dublin over the previous twelve months.
- Demand for new premises affected by availability of more attractive terms from landlords to retain tenants in existing buildings. Older office stock vacated by companies moving to

⁷⁸ *Residential Mortgage Arrears and Repossessions Statistics*, Central Bank of Ireland, Information Release, Q3 2012

⁷⁹ In separate research undertaken by Davy, more than one-half of Irish mortgages were found to be in negative equity. With a stock of 761,533 private residential mortgages, this would suggest that over 380,000 mortgages are in negative equity, *Irish Mortgage Arrears Analysis*, Davy Stockbrokers, August 2012

⁸⁰ This estimate is based on the number of commencements which is the most reliable indicator of new house building at present. Data on commencements is available from www.environ.ie and shows that there were just 3,083 commencements in the first nine months of 2012, of which 2,475 were single or one-off units

⁸¹ *Dublin Office Market Review*, CBRE, Q2 2012 and Summer Review, DTZ Sherry Fitzgerald 2012

⁸² *Dublin Office Market Review*, CBRE, Q2 2012

new premises is added to the vacant stock. A number of companies are subletting, a trend which is adding to overall supply.

- The overall vacancy rate in the capital was 21.9 percent at the end of Q2 2012.

In regard to the commercial/industrial market⁸³:

- The Dublin vacancy rate was 26.5 percent at the end of June 2012 compared with an equilibrium rate of 7 percent, indicating little demand and little incentive for new development to take place. This includes new builds and existing ageing stock in need of substantial upgrading and in the current economic climate landlords may not be able to upgrade.
- Development activity in the Dublin market is stagnant with no new space under construction.
- Overall transactions activity during the first half of the year was focused on small units measuring less than 1,000 square metres.
- There is a limited stock of large good quality vacant buildings and any such stock coming to the market is being snapped up quickly.
- The ICT sector is registering high on the demand table for industrial space, as Dublin continues to evolve as a data centre hub for cloud computing and modern data storage⁸⁴.

In the retail sector, Ireland saw an unprecedented amount of retail shopping centres and retail parks put in place in the decade to 2007. Retail construction volumes have contracted sharply over the past five years as the sector struggles to cope with an oversupply of space, a decline in consumer spending, and the growth in online sales.

Although there has been increased interest from national and international retailers seeking to expand or gain representation in Ireland⁸⁵, the retail environment is expected to remain challenging in the short to medium term with little new development activity expected other than possibly major refurbishment.

The private non-residential building sector also captures investment in buildings and facilities by the agricultural and tourism sectors. Investment in both sectors has fallen substantially in recent years, due to: i) the record investment levels by the agriculture sector in 2007/2008; and ii) over investment in the hotel sector during the Celtic Tiger period.

Most agents suggest that the key factors responsible for the lack of new non-residential development are the continued uncertainty regarding the economic outlook, the large overhang of stock, the tight lending environment and the already high level of debt on companies' balance sheets.

Public sector construction:

This section covers all publicly funded construction output: civil engineering infrastructure and social infrastructure (i.e. non-residential public buildings). Austerity measures and reduced multi-annual Exchequer capital investment provisions have meant that Government departments, local

⁸³ Summer Review, DTZ Sherry Fitzgerald 2012

⁸⁴ Dublin Office Market Review, CBRE, Q2 2012

⁸⁵ Summer Review, DTZ Sherry Fitzgerald 2012

authorities and semi-state agencies, are spending substantially less on the provision of buildings and infrastructure that they would otherwise. The total Exchequer capital provision is €3.96 billion in 2012 and €3.4 billion in 2013 compared with around €8 to €9 billion per annum at the time of the 2009 Budget. At current levels, the Government's capital programme is expected to sustain in the region of 30,000 construction and related jobs annually, according to the *Action Plan for Jobs* (February 2012).

This scale of decline in capital investment is impacting construction companies and professional practices. Government has identified three key areas - Education, Health and Enterprise - as priority areas with respect to capital investment. The recent stimulus package announced for construction includes projects in some of these areas (see Chapter 3).

The primary source of funding for public sector construction is the public capital programme (PCP) which sets out the capital investment plans by the State, local authorities and semi-state companies funded from both Exchequer and non-Exchequer sources. These allocations cover investment in building and construction as well as investment in machinery and equipment. There is additional investment in public private partnership (PPP) projects which comprise arrangements between the public and private sectors. These are funded by a mix of revenues, including user charges, road tolls and local authority own resources (e.g. in case of social housing). However it is the case that PPP projects are experiencing challenges in securing capital funding since the financial crisis began three years ago.

The most recent provisions for public capital investment were published with the Revised Estimates for Public Service in February 2012⁸⁶. More detailed information on infrastructure plans and priorities was provided in a document entitled *Infrastructure and Capital Investment 2012-2016*⁸⁷ published last November⁸⁸.

The general rule of thumb for deriving estimates for public sector construction output is that 75 percent of the Exchequer capital allocation and 60 percent of the non-Exchequer capital provision goes into construction⁸⁹. These estimates are supplemented by estimates for private sector investment where it arises, e.g. health, education and energy.

Repair, maintenance and improvement output:

The value of repair, maintenance and improvement (RM&I) output includes expenditure on external and internal maintenance works, outlays on worn-out or damaged fixed equipment and permanent fixtures and on repairs to the building structure⁹⁰. Table 2.12 (above), showing the value and volume of construction output, includes estimates for investment in new projects as well as RM&I expenditure on existing buildings and structures.

⁸⁶ Some minor adjustments were made as part of Budget 2013

⁸⁷ <http://per.gov.ie/wp-content/uploads/Infrastructure-and-Capital-Investment-2012-20161.pdf> November 2011

⁸⁸ Although in the intervening three months some projects included in the November publication have been postponed, most notably the Mater Children's Hospital, following rejection by An Bord Pleanála in February

⁸⁹ Appendix 4 contains further detail in relation to the public sector capital investment Exchequer provisions in the multi-annual capital investment framework covering the period 2012 to 2016

⁹⁰ Data was collected up to 2010 on new and RM&I expenditure levels separately. However, in regard to RM&I expenditure there were reservations as to the accuracy of the figures as it was considered that the figures for new investment also included some RM&I expenditure

While there is a separate CSO survey on residential expenditure which captures spending by households on RM&I, there is little or no information on the level of RM&I expenditure on the non-residential building and infrastructure stock. However it declined over the period 2008-2010 in response to the difficult economic and trading environment over that period as well as the tight fiscal situation which transpired for Government and local authorities. Further reductions of the order of 20 percent per annum are assumed in 2011 and 2012 as businesses continue to react to the difficult economic environment and chose instead to pay down debt. Difficulties accessing finance are also likely to result in limited funding being available for such works.

Overall the volume of residential and non-residential construction output associated with RM&I projects is expected to decline by 11.6 percent in 2012.

Direct economy expenditure

Spending by the construction sector generates economic activity and gives rise to employment, value added and taxation for the Exchequer. Each of these impacts are interrelated since employment by the sector gives rise to wages and salaries which form part of the contribution of the sector to national output and also contribute to taxation in terms of PAYE and PRSI.

Table 2.13 contains a breakdown of gross output from construction of €38,442 million across the main input categories, based on CSO Input-Output data for 2005 (latest available). The use of products and services (i.e. inputs) by the domestic construction industry, known as intermediate consumption, was valued at €19,158 million (or €24,441 million (including imports) in 2005).

Table 2.13 Input-Output Table of Domestic Construction Flows €m.

Use of products in production	€ million
Agriculture, Forestry and Fishing	63
Manufacturing	4,078
Construction	10,062
Distribution, Communications	1,516
Business Services	2,977
Other Services	462
Intermediate Consumption (at basic prices)	19,158
Imports	4,978
Product taxes less subsidies	305
Total consumption at purchasers' prices	24,441
Compensation of Employees	9,380
Operating surplus, net (profits)	4,246
Consumption of fixed capital/depreciation	351
Other taxes less subsidies	24
Gross value added at basic prices	14,001
Total Inputs = Total Outputs	38,442

Source: CSO Input-Output Tables, 2005 (latest data available)

Exports & internationalisation⁹¹

Some Irish construction firms have grown in scale and are competing successfully in international markets, as centres of excellence in areas such as civil and structural engineering, mechanical and electrical contracting, and power, energy and pharmaceutical construction and maintenance. Experience in developing world class high spec facilities catering to FDI pharmaceutical and ICT investments into Ireland over a number of years has helped to build a strong value proposition for Irish construction firms abroad.

In 2011, construction related merchandise exports were valued at just over €101 million, while construction related services exports amounted to €370 million⁹², corresponding to almost 0.3 per cent of all exports in 2011. Export data does not fully capture the extent of Irish construction firms' activities in overseas markets and its impact within the Irish economy. Some will have established corporate entities overseas (outward direct investment) and partnerships of various forms, and a considerable proportion of the profits are repatriated to Ireland.

The downturn in the domestic market has resulted in more indigenous firms making initial forays into overseas markets. Enterprise Ireland has recorded strong gains in international sales amongst its growing construction sector exporting client base in 2010 and 2011. However, resource constraints (including under-capitalisation), management experience, and scale are key barriers in growing levels of internationalisation particularly in current economic conditions.

Education and training provision

Education and training provision for the construction sector in Ireland extends across the various different crafts/trades⁹³ through to qualifications preparing individuals for roles in supervisory, technical, engineering and construction management. Several different providers are involved.

A formal apprenticeship training structure is in place for the construction related trades which involves SOLAS (formerly FÁS), the VECs and the Institutes of Technology⁹⁴. Separately, a range of undergraduate and postgraduate programmes provide qualifications in areas such as construction management/technology/materials, architecture, quantity surveying, building and services management, and sustainable construction. Alongside these mainstream education and training programmes, a number of private sector providers offer continuous professional education options. Some of these are driven by manufacturers/suppliers of building energy efficient systems and products (for e.g. renewable energy heating technologies), while others have emerged through industry led initiatives facilitated by Skillnets (for e.g. Construction IT Alliance Skillnet and ITFMA EcoConstruction Skillnet⁹⁵).

⁹¹ Chapter 4 provides more detail in relation to internationalisation of the Irish construction sector

⁹² CSO Service Exports and Imports, 2010: 'Architectural, engineering and other technical services'; and CSO External Trade, 2012: 'Prefab buildings, plumbing and electrical fixtures and fittings'

⁹³ Including Carpentry and Joinery, Brick and Stone Masonry, Electrical, Plumbing, and Plastering

⁹⁴ Not all construction trades are catered for under the apprenticeship model and are generally learned 'on the job' - these include: concrete workers, roofers, glaziers and insulation installers, *Build Up Skills Ireland: An analysis of the national status quo, 2012*

⁹⁵ ITFMA - Irish Timber Frame Manufacturers Association

Figure 2.5 New entrants to third level construction related courses



Source: HEA

Over the period of the construction boom, apprenticeship and undergraduate courses in construction related disciplines were in high demand, and over-subscribed. We are now seeing a reversal of this situation. Recent data relating to the number of students entering third level education shows a decrease of 42 percent in the number of students applying to study construction related courses between 2007 and 2011⁹⁶. Data shows that entrants into Building and Civil Engineering courses specifically declined over 95 percent in the 2008-2011 period, while the number of students seeking to study Architecture and Town Planning fell by over 36 percent in the same period⁹⁷.

Table 2.14 Level 8 graduates from construction related courses

Academic Year	University	ITs	Total
2006/2007	364	728	1,092
2007/2008	380	989	1,369
2008/2009	342	979	1,321
2009/2010	437	1,109	1,546

Source: HEA

The decline in new entrants is in direct contrast to the numbers of new graduates entering the labour force for the first time. The numbers of graduates from construction related courses increased each year since 2006/2007, apart from a modest reduction in 2008/2009, although numbers picked up significantly again in 2009/2010 (Table 2.14). This reflected the attraction of

⁹⁶ DKM Economic Consultants analysis for Forfás

⁹⁷ Source: Higher Education Authority, data available at <http://www.heai.ie/en/statistics>

construction related courses to students when construction was at its peak and earnings in the sector were particularly attractive.

Table 2.15 Number of FÁS construction related apprenticeship registrations

Trade	2003	2006	2009	2011	2012*
Bricklayer	549	474	20	11	3
Cabinet making	217	207	21	3	0
Carpentry and joinery	1,850	1,908	140	72	44
Construction plant fitter	84	87	26	32	26
Electrical	1,770	2,269	523	355	242
Floor and wall tiler	37	32	4	1	1
Painting and decorating	140	161	19	18	9
Plastering	268	220	14	5	3
Plumbing	938	1,501	127	146	56
Wood machinist/wood manufacturing	15	14	3	12	9
Grand Total	5,868	6,878	893	655	393

Source: FÁS Annual Reports (various years), *2012 refers to first 6 months only (Source: FÁS)

The total number of apprenticeship registrations for construction related trades has reduced considerably from close to 7,000 in 2005 to just 650 in 2011. The total registrations in the first eight months of 2012 was 393, comprising predominantly electricians (60 percent), plumbers (14 percent) and carpenters (11 percent).

In the period 2003-2011 the average annual intake was around 4,000 compared with an average of only 728 in the last three years. A conservative estimate of apprenticeship intake is unlikely to be above this level and possibly even lower - between 550 and 600 per annum from 2013 to 2015⁹⁸.

To facilitate continued progression of apprenticeships through their training in the case of redundancy, FÁS amended the apprenticeship rules in 2008 to permit redundant apprentices to progress to their next off-the-job phase. In February 2011, a revised Redundant Apprentice Placement Scheme was introduced to enable redundant apprentices complete on-the-job training (at phases 3,5 & 7). In addition, a competency determination mechanism for redundant apprenticeships was also introduced in 2011 on a pilot basis for construction related trades (extended to other trades in 2012).

Over the past five or six years, a range of add-on or supplemental training programmes in energy efficiency and renewable energy have emerged for the up-skilling of construction trades people and system installers⁹⁹. This has been driven in large measure by energy policy implementation; new regulations requiring mandatory qualifications (for e.g. domestic gas installation); and the

⁹⁸ *Forecasts of Apprenticeship Intake into Selected Construction Trades to 2015*, FÁS/SLMRU, Final Report, September 2011

⁹⁹ A detailed overview is contained in *Build Up Skills Ireland: analysis of the national status quo*, 2012

introduction of SEAI grant aided retrofit programmes. A combination of providers is involved, including: FÁS/SOLAS, IoTs, Skillnets, and a range of private organisations (including manufacturers and materials/systems suppliers). Under Springboard, the Government's current labour market activation programme, a number of programmes were offered in 2011 which were designed to up-skill unemployed construction related craft workers for opportunities in the renewable energy sector¹⁰⁰.

Research and innovation

There is little information available relating to the research and innovation performance of the Irish construction sector. The Community Innovation Survey which measures levels of process and product innovation within enterprise does not report specific information for the construction sector.

The CSO/Forfás survey on Business Expenditure on R&D (BERD) contains indicators relating to R&D personnel and expenditure across all sectors of the economy. Construction activities are included within a broader utilities group, and it is evident from the survey results for 2009/10 that BERD in this grouping is negligible compared to other manufacturing and services sectors. As regards total headcount of all R&D staff, the construction and utilities group comprises 61 out of the 15,773 across all sectors, and accounts for only €4.6 million out of a total of €1.9 billion expended by all sectors on R&D.

R&D activity within the higher education sector has increased in recent years, coinciding with the construction boom. Table 2.16 lists a selection of research centres currently in existence. There has been some interaction with industry, however there is scope for more extensive engagement. A very good example of effective partnership has been seen in the development of NUI Galway's new Engineering Building which houses the School of Engineering & Informatics. The building has been constructed to provide a working example for engineering students to study.

Perhaps there is little surprise in the BERD figures and limited R&D engagement between the industry and HEIs in Ireland - the construction sector globally has traditionally been slow to innovate. In recent years however this image has changed somewhat, driven by advances in information technology that have transformed project delivery, and the application of new technology and materials to meet progressively higher environmental standards. Chapter 5 discusses these developments in more detail and underlines the importance of innovation adoption and R&D activity to underline future competitiveness of the Irish construction sector in both the domestic and overseas context.

¹⁰⁰ *Ibid.*

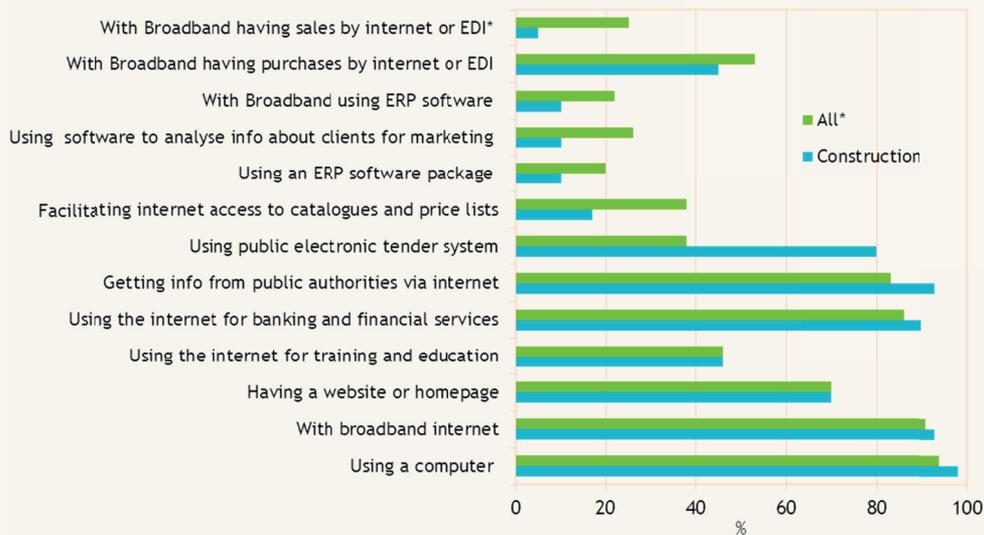
Table 2.16 Selection of construction relevant HEI research activities/centres

Research Group/Centre	HEI	Research Focus
Information & Communications Technology for Optimal Building Operations (ITOBO)	UCC, CIT, NUIG, Tyndall	SFI Strategic Research Cluster, focused on developing ICT solutions for optimal building operation
Sustainable Design and Research in Engineering and Built Environment (SDAR)	DIT	Energy management, passive design/low energy buildings, SDAR Journal with Chartered Institute of Building Services Engineers (CIBSE) Ireland
Construction Industry Research & Knowledge Centre (CIRK)	WIT	ICT in construction (BIM, e-Learning), knowledge management, sustainability & eco-innovation, HRM
Informatics Research Unit for Sustainable Engineering	NUIG	Integrated knowledge & information frameworks for sustainable engineering design with a focus on the building lifecycle
Bridge and Transport Infrastructure Research Group	UCD	Bridge monitoring and loading, rail transport, vehicle dynamics
Materials and Concrete technology research	UCD	Railway foundation integrity, design of stone mastic asphalt and thin surfacing materials
Department of Civil, Structural and Environmental Engineering	TCD	Geotechnical design of foundations, properties of concrete and concrete structures, excavations and tunnelling
TrinityHaus	TCD	Innovative solutions for buildings, neighbourhoods & cities, energy efficient buildings and eco-districts, people centred design of homes & neighbourhoods

The construction sector in a global context has been slow in shifting from traditional modes of working to exploit the full potential of ICT. The sector in Ireland reflects this trend and is characterised by low and slow ICT take-up and awareness, especially amongst SMEs¹⁰¹. Specific data in relation to ICT in construction is limited, however the CSO ICT in Enterprise survey does give some indication as to the sector’s performance relative to the wider economy (Figure 2.6). Across a number of indicators, construction compares well with other sectors, although in terms of utilising ICT for more sophisticated e-business applications it tends to lag. The data only refers to enterprises larger than 10 persons, and as a consequence omits the vast majority of construction enterprises, who are likely to display quite different characteristics than their larger firm counterparts.

¹⁰¹ Finding a middleware ICT solution for the Irish construction SME sector, Hore, A.V., Redmond, A. & West, R., RICS publication, Sept, 2010

Figure 2.6 Selected Enterprise ICT Survey indicators, 2011¹⁰² (% of enterprises)



Source: CSO, *ICT in Enterprise Survey 2011* (*EDI - electronic data interchange)

The shadow economy

Shadow economy operators have a detrimental impact on legitimate construction businesses, undermining their capacity to compete and weakening their sustainability and potential to create jobs. Loss of revenue to the State has implications for everyone, while consumer and employee protection is also compromised. Shadow Economy activity also causes reputational damage to the sector and its perceived level of professionalism overall.

The shadow economy in construction ranges from businesses understating their sales/income, under declaring cash payments or paying employees ‘off the books’ in cash, to individuals doing ‘nixers’ either in addition to their normal taxed employment or while also claiming Dept. of Social Protection (DSP) payments. It also includes companies who are not compliant with labour regulations and/or not meeting prescribed wage rates for construction workers.

The average size of the shadow economy of the 27 EU countries was estimated at 18.4 percent of (official) GDP in 2012 compared with 22.3 percent in 2003¹⁰³. The ‘older’ western EU countries tended to have lower black economies compared with the new Eastern European member countries. The size of the black economy increases from North to South across the EU. The more developed OECD economies (Australia, Canada, Japan, New Zealand and the US) had much lower shares at around 9 percent in 2012.

¹⁰² The CSO Enterprise ICT survey which covers manufacturing, construction and selected service sector enterprises is conducted by post in March each year. The survey is made up of a sample of approximately 7,000 enterprises with 10+ employees between NACE codes 10 - 82 inclusive

¹⁰³ Because of its nature, the extent of shadow economy activity is difficult to measure accurately. This calculation of the size and development of the shadow economy is drawn from a 2012 study done using statistical regression models for 31 European and 5 other OECD countries, *Size and Development of the Shadow Economy of 31 European and 5 other OECD Countries from 2003 to 2012: Some New Facts*, Schneider, 2012

The figure reported for Ireland for 2012 was 12.8 percent of GDP (based on an estimated GDP of around €160 billion) and would imply a black economy of around €20 billion¹⁰⁴. This figure represents the value of all unreported income from the provision of legal goods and services across all sectors of the economy. Given the nature of building and construction work (much of which is cash based) and the current severe contraction in the volume of work over the past six years, construction is likely to account for a significant share of this total. Assuming it is twice the overall economy rate in the construction sector, this would correspond to around 25 percent of construction output, implying a black economy in the building and construction sector of around €2 billion (i.e. 25 percent of €8 billion).

In a 2012 survey undertaken by the Construction Industry Federation (CIF), 76 percent of construction companies experienced black economy operations in the three months prior to the survey¹⁰⁵. The survey defined activity in the black economy as ‘comprising work carried out outside the scope of the relevant regulations facing the industry and with no regard to compliance with building standards revenue compliance or health and safety standards’. Such activity also tended to be carried out by individuals who also receive social welfare benefits. Non-compliance with wage rates was also stated as being a cause of concern to those legitimately operating in the industry. The main sectors where it was found to be operating was in regard to private individuals/households and small businesses as well as commercial or public sector contracts, particularly at the sub-contractor level, as well as material suppliers. Cross border activity by construction operatives operating in the North was also highlighted as an important issue.

The Department of Social Protection (DSP) is currently implementing a *Fraud Initiative* which involves emphasis on inter-agency cooperation and focus on sectors and activities (especially cash based businesses) which pose the highest risk¹⁰⁶. The shadow economy is also a major focus for Revenue, and a risk based approach supported by intelligence collation, data matching and streetscape operations is underway¹⁰⁷.

Revenue and DSP work closely together through a High Level Liaison Group, on-going data exchanges, and on the ground joint investigations regionally and locally (which often also include the National Employment Rights Authority - NERA).

Shadow Economy activity has and continues to cause reputational damage to the sector and impacts on its perceived level of professionalism.

Irish construction in a European context

The importance of construction employment to the Irish economy over the past number of years is evident in a comparison with other European countries. In 2008 approximately 11 percent of (direct) employment in Ireland was accounted for by the construction sector, ranking second, after Spain, out of 15 European countries. This proportion declined dramatically in Ireland in the

¹⁰⁴ Or about 16 percent of GNP, assuming GNP of c. €126 billion in 2012

¹⁰⁵ Survey was conducted in July 2012. <http://cif.ie/news-events/current-news/76-percent-of-construction-companies-have-experienced-black-economy-operations-in-last-3-months/>

¹⁰⁶ DSP Fraud Initiative 2011-2013: <http://www.welfare.ie/en/downloads/fraudinitiative2011.pdf>

¹⁰⁷ Revenue has previously made adjustments to the Relevant Contracts Tax and VAT (reverse charge) to promote tax compliance specifically within the construction sector

subsequent years, to approximately 6 percent in 2011. No other European country has experienced such a dramatic decline in their relative proportions of construction employment. The scale of the contraction in Ireland is equally evident when employment is split across the broad regions for the purposes of the EU: the Border Midland Western region and the Southern and Eastern region.

Table 2.17 Construction employment as a percentage of total employment

	2008	2009	2010	2011
European Union (27 countries)	8.3	7.9	7.7	7.4
Belgium	7.2	7.2	7.2	7.5
Denmark	6.9	6.4	5.9	5.9
Germany	6.6	6.6	6.7	6.7
Ireland	11.3	7.9	6.4	5.9
<i>Border, Midland and Western</i>	<i>13.0</i>	<i>9.1</i>	<i>7.4</i>	<i>6.7</i>
<i>Southern and Eastern</i>	<i>10.7</i>	<i>7.5</i>	<i>6.1</i>	<i>5.7</i>
Greece	8.7	8.2	7.3	6.1
Spain	12.1	10.0	8.9	7.7
France	7.2	7.2	7.4	7.3
Italy	8.5	8.5	8.5	8.0
Luxembourg	7.8	5.7	6.3	6.5
Netherlands	6.0	5.7	5.4	5.2
Austria	9.2	8.7	8.3	8.8
Portugal	10.7	10.0	9.7	9.1
Finland	7.3	7.1	7.0	7.1
Sweden	6.6	6.5	6.7	6.7
United Kingdom	8.9	8.2	7.6	7.5

Source: Eurostat, Labour Force Survey

Trends in production in construction across the EU

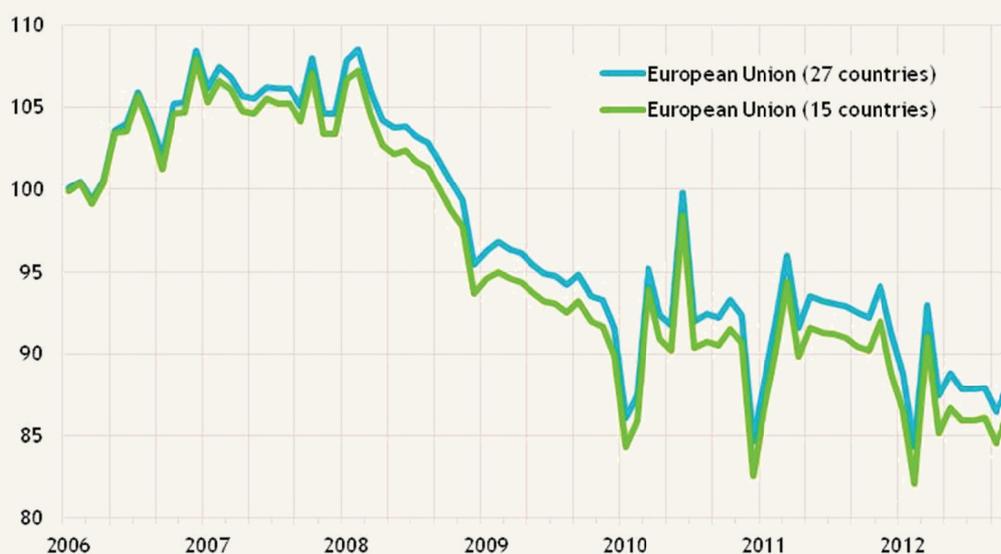
Construction output in the EU-27 peaked in February 2007 and by January 2010 had declined by almost 20 percent. This initial downturn was followed by a slight, temporary recovery until June 2010, after which substantial falls were recorded, reaching a new low in December 2010, just under three years after the initial downturn. A further temporary recovery saw the index reach almost 95 at the end of 2011, following which the index decline by almost 8 percent by June 2012.

The long and deep downturn in construction activity is widespread within the EU-27, illustrated by the fact that every Member State except Poland experienced at least one year of contraction in construction output during the last four years (2008 to 2011). Four member States (Ireland, Spain, Portugal and Hungary) recorded negative rates of change in each of the past five years.

The volume of construction output declined by 74 percent in Greece since the peak and by 50 percent or more in Spain and Slovenia. Declines of between 40 percent and 50 percent were

recorded in in Portugal, Latvia and Lithuania. In contrast the volume of construction output increased in Estonia (26.7 percent), Lithuania (+22.3 percent), Poland (+15.8 percent) and Germany (13.3 percent) in 2012¹⁰⁸.

Figure 2.7 Index of production in construction output in European countries, 2006-2012 (Oct)



Source: Eurostat

Summary and conclusion

Having grown to unprecedented levels in terms of output and employment in the decade to 2006/7, the sector is now making a much reduced but still significant contribution to the economy. In summary:

- The sector employs 96,300 people directly, accounting for 5.2 percent of total employment, and in terms of output in 2012 accounted for 6.4 of GNP overall¹⁰⁹.
- Construction activity has a broader impact within the economy, through indirect employment of circa 48,000, and in the value of purchases it makes in the domestic economy (c.€19 billion in 2005)¹¹⁰.
- Around the peak of the boom, in 2006, the sector made an unprecedented contribution of circa 25 percent to GNP and accounted for over 12 percent of total employment. Since then, construction unemployment has grown substantially, and now stands at 58,000 people (almost 20 percent of total unemployment), with an average duration of almost 29 months.

¹⁰⁸ Source: Eurostat

¹⁰⁹ Employment based on CSO *QNHS*, Q1 2013; Output is a DKM Economic Consultants estimate for Forfás, based on methodology used in DOEHLG, CIRO, various years

¹¹⁰ 2005 is the latest available data in relation to intermediate consumption contained in CSO *Input-Output* tables

- The value of construction output domestically has dropped by more than 40 per cent in private non-residential building and almost 27 per cent in private residential building, on average annually, over the 2007-2011 period. Public social infrastructure and productive infrastructure (civils) related construction output has declined by 6.7 per cent and 8.8 per cent on average annually over the same period respectively. Estimates for 2012 predict further falls in output in all sub-sectors except private non-residential building¹¹¹.
- As is the case globally, the sector is fragmented and occupationally diverse. The majority of employees are involved in construction trades (c. 60 per cent) with the remainder occupied across a range of professional services and other activities. All occupational groups have been severely affected by employment losses over the past 3-4 years, although the impact has been greatest amongst construction trades.
- Many individuals have left the sector to gain employment or retrain in alternative occupations or through emigration or retirement, with a consequent loss of skills from the sector.
- The sector is comprised of over 40,500 enterprises, almost 34 percent fewer than existed in 2006. Despite the reduction in number, the overall size profile remains broadly the same, with the vast majority (96.7 percent) engaging less than 10 people. This is a significant challenge for the sector in the context of realising internationalisation potential.

Overall, domestic market conditions are challenging; demand for new construction in private residential and commercial segments has collapsed while the public capital programme has suffered cut backs and deferrals. An absence of prudent speculation, compounded by lack of financing has created a scarcity of property solutions for new FDI especially in Dublin city.

Some Irish construction firms have grown in scale and are competing successfully in international markets, as centres of excellence in areas such as civil and structural engineering, mechanical and electrical contracting, and power, energy and pharmaceutical construction and maintenance. Experience in developing world class high spec facilities catering to FDI pharmaceutical and ICT investments into Ireland over a number of years has helped to build a strong value proposition for Irish construction firms abroad.

The downturn in the domestic market has resulted in more indigenous firms making initial forays into overseas markets. Enterprise Ireland has recorded strong gains in international sales amongst its growing construction sector exporting client base in 2010 and 2011.

Apprenticeship and undergraduate courses in construction related disciplines were in high demand during the boom, but the more recent collapse in the number of new entrants may give rise to capacity issues in future as the sector recovers. In the meantime, there is an imperative to further up-skill existing construction sector personnel to take advantage of opportunities presented by the green economy.

Increased innovation adoption within the industry is necessary to ensure compliance with transposed EU Directives in relation to climate change, while maintaining a competitive edge increasingly requires firm level technology leadership through R&D activity. HEI research activity

¹¹¹ The downturn in construction activity is widespread within the EU-27 although Ireland is amongst a group of countries including Spain, Portugal and Greece where declines have been particularly severe. Construction output increased in Estonia, Lithuania, Poland and Germany in 2012 (Source: DKM Economic Consultants)

has grown in line with the expansion of activity during the boom years and with increased market demand for greener construction, but engagement with industry is limited currently.

Shadow economy activity is a concern for the sector and although data is limited, it is reasonable to assume that construction is likely to account for a significant share of such activity in the economy generally. A recent CIF survey (July 2012) suggested that three-quarters of construction companies had come across shadow economy operations in the three months prior to the survey.

Chapter 3 discusses the outlook for the domestic sector looking towards 2015 and considers key barriers and enablers in terms of achieving accelerated recovery. Chapter 4 focuses on the potential for increased internationalisation.

3 Outlook to 2015 in the domestic market

Introduction

This Chapter assesses the potential for the construction sector in the next three years building on the baseline position presented in Chapter 2 and is structured as follows:

- Firstly, the optimum level of output for Irish construction is considered, bearing in mind the exceptionally weak position of the construction sector at the present time, with output in 2012 estimated at €8 billion, equivalent to 6.4 percent of GNP (5 percent of GDP);
- Secondly, a scenario for the period to 2015, based on indications as of end 2012 is presented. This is based on known and estimated domestic market demand across the four main activity areas: residential construction; private non-residential construction; productive infrastructure (civils); and social infrastructure¹¹²;
- Thirdly, consideration is given to additional factors that might impact on actual out-turn over the period to 2015 either positively or negatively; and
- Lastly, the main demand and supply-side barriers/enablers are identified which may impact on the sector's performance.

While the overall picture is one of uncertainty, there is some evidence of latent demand building in the domestic context. Should macro-economic conditions and overall sentiment improve, and if barriers/enablers are addressed (as outlined later in Chapter 6) we may see increased activity over and above what the scenario presented here indicates.

Optimum performance

Based on the estimates for 2012, the construction sector has recorded another double digit decline in construction output for the fifth year in a row, reaching just 6.4 percent of GNP (5 percent of GDP).

A comparison with the size of the construction industry in other countries and long-term trends for Ireland over past decades indicates that an economy the size of Ireland and with remaining infrastructure deficits and positive demographics could be capable of sustaining a construction industry equivalent to around 12 percent of GNP (10 percent of GDP). There is a significant gap to be bridged if the sector is to reach activity levels of up to 12 percent of GNP from present levels (see Figure 3.1 below)¹¹³.

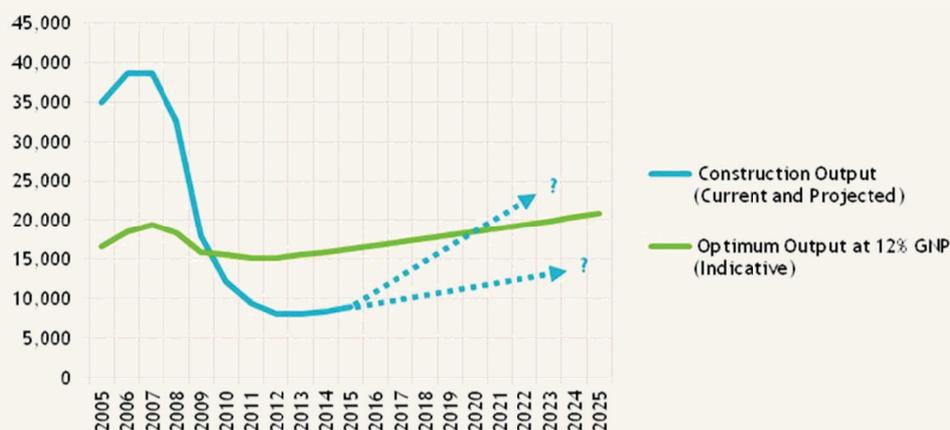
Using data from Euroconstruct, the average size of the construction industry across member countries was 10 percent of GDP in 2012 compared with 12 percent in 2008. Excluding Ireland (5 percent of GDP), the shares ranged from 14.6 percent in Finland to 7 percent or less in Spain and

¹¹² We can be more certain about development in some areas more than others, for example, the Public Capital Programme outlines projected expenditure on productive and social infrastructure to 2016, while developments relating to the enterprise sector are less certain

¹¹³ Appendix 3 presents estimates of what the 'optimum size of the construction industry would be in value terms in the medium term based on an 'optimum' level of 12 percent of GNP (10 percent of GDP)

the Slovak Republic (see Appendix 2). Over the 25 years 1984 to 2008, the construction industry in Ireland accounted for almost 17 percent of GNP on average. Excluding the boom period (1994-2008), construction output accounted for around 13 percent of GNP over the period 1984-1993¹¹⁴.

Figure 3.1 Construction output current trajectory versus optimum level (12% of GNP)



Source: Current and projected construction output data derived from DKM Economic Consultants analysis for Forfás (Optimum output as a percentage of GNP assumes a flat GNP growth rate of 2.5 percent).

Overall scenario to 2015

The forecasts presented in Table 3.1 are based on best estimates of anticipated demand for construction in the domestic economy over the period to 2015¹¹⁵.

Table 3.1 Overall projections for construction output, 2012-2015F

	2012	2012E	2013F	2014F	2015F	2012E	2013F	2014F	2015F
	<i>Current prices €m</i>		<i>Constant 2010 Prices €m</i>			<i>Annual % change in volume</i>			
Residential	3,552	3,947	3,765	4,023	4,376	-20.8	-4.6	6.8	8.8
Private Non-Residential	694	673	676	690	711	17.2	0.4	2.0	3.0
Productive Infrastructure	2,903	2,878	2,750	2,761	2,820	-10.2	-4.4	0.4	2.2
Social Infrastructure	930	900	888	1,015	1,073	-22.1	-1.3	14.3	5.7
Total Construction Output	8,079	8,397	8,080	8,488	8,979	-15.3	-3.8	5.1	5.8
<i>As % of GNP</i>	6.4	6.6	6.3	6.5	6.7				
<i>As % of GDP</i>	5.0	5.3	5.0	5.1	5.2				

Source: DKM Economic Consultants analysis for Forfás, 2012 (See notes Appendix 5)

¹¹⁴ *Jobs and Infrastructure: A Plan for National Recovery, Submission to the Government by the Construction Industry Council, 2009* available at <http://www.dkm.ie/uploads/pdf/reports/CIC%20Submission%20to%20Government.pdf>

¹¹⁵ More detailed tables are contained in Appendix 5 showing a further sub-sectoral breakdown

The projections suggest that output will fall further in 2013 to 6.1 percent of GNP before making a modest recovery to 6.7 percent of GNP (5.2 percent of GDP) in 2015. This level is substantially below levels recorded in the past forty years.

The projections represent a conservative view in the sense that they exclude potential activity arising from Government decisions as yet unconfirmed or yet to be implemented, and other potential sources of increased activity as yet uncertain. Additional factors that may influence the actual outcome over this period are discussed below.

The key assumptions underpinning the projections are as follows:

The prospect for housing demand

The projection for new residential construction is for a continuation of very low house building rates, given the challenges which are likely to persist with respect to the economy and household finances. Further fiscal adjustment over the period 2013-2016, the build-up of mortgage arrears and negative equity combined with little improvement in the unemployment rate suggests that housing demand is likely to remain below normal levels in the medium-term. While demand in urban areas is likely to recover initially, given the underlying demand which exists in those locations, other areas are likely to be more problematic; in particular, areas of low demand and where there are already high proportions of unfinished estates. In the construction projection presented for the medium-term (Table 3.1), the total number of new dwellings built in the next three years is projected to increase to 7,000 by 2015, up from 4,000 in 2013 and 5,500 in 2014.

Private non-residential construction

Projections for construction activity in the non-residential property sector are difficult to gauge due to a lack of data. This lack of a comprehensive measure of the quantum of commercial and industrial building put in place nationwide (as there is for new house-building, for example), is a key issue for the industrial and commercial building market. As a result, estimates have been prepared taking into account reports from the main property agents, which tend to rely on regional or even local markets, and the impact of the economic environment on private sector non-residential development¹¹⁶.

The information which is available on development activity levels in the private non-residential market (in Dublin and in a number of other urban areas) from the property agents' regular Market Reviews¹¹⁷ suggest that there is currently a complete lack of new development in the Dublin office and industrial market, with office and industrial vacancy rates at 21.9 percent and 26.5 percent respectively (end Q2 2012) in the capital city. Most suggest that the key factors responsible for the lack of new non-residential development are the continued uncertainty regarding the economic outlook, the large overhang of stock, the tight lending environment and the already high level of debt on companies' balance sheets. There is also the issue regarding the cost of construction

¹¹⁶ The value of commercial and industrial building was, until 2010, estimated in the CRO based on assumptions about the volume of completions in Dublin, the time lag from start to completion, the cost of construction by building type, grossed up for professional fees, levies, VAT and an estimate for profit. The figures were then grossed up (assuming Dublin represented 80 percent of the total office building market and two-thirds of the retail market), to ascertain the total value of completed office and retail space put in place nationwide in each calendar year. From 2011 onwards, estimates are based on agents' reports and assumptions about the impact of the economic environment on private sector non-residential development

¹¹⁷ *Dublin Office Market Review*, CBRE, Q2 2012 and *Summer Review*, DTZ Sherry Fitzgerald 2012

which is currently reported to be above any value which might be achieved in the current market¹¹⁸.

The value of private non-residential development activity across the State is assumed to be modest at €555 million across the industrial, offices and retail sectors in 2012 or €694 million, when other non-residential buildings (tourism, agricultural) are included.

There are also expected to be niche refurbishment opportunities in the renovation market for the conversion of some properties to alternative uses, the repair and maintenance of secondary accommodation and an improvement in the energy efficiency of existing buildings. However, as with the residential construction sector, the funding for energy efficient schemes in the non-residential sector may be lower in the medium term compared with previous years. Investment in private non-residential RM&I is projected to decline in volume terms in 2013 (-5 percent) before stabilising in 2014 and increasing modestly in 2015 (+2.4 percent).

The overall projection for the medium term assumes that the market stabilises in 2013 with a modest recovery in the volume of construction output (new and RM&I) associated with private non-residential building projects in 2014 (+2 percent). Growth is expected to accelerate to 3 percent in 2015. The projection continues to assume that the market for private non-residential development activity is affected by the uncertain economic outlook which is likely to continue to impact on business confidence. However, it also assumes additional demand from the exporting sector in the context of continued strong performance in FDI and indigenous exports. As such the overall projection presented in Table 3.2 is deemed to be conservative and does not include the value of any potential new FDI plans as the values or the timing of any potential new investment are not known.

Public capital investment (in productive and social infrastructures) (incl. PPPs)

The only public capital investment included in the projection for the medium-term is that set out in the multi-annual capital investment framework to 2015 and the additional projects to be funded under the recent stimulus package.

(i) Total Exchequer funding of over €13 billion over next four years¹¹⁹

The five-year capital investment programme 2012-2016 provides for a budget of €17.1 billion, of which €3.96 billion (23 percent) consisted of the Exchequer provision for 2012. Looking at the provisions for the three years 2013-2015, the total is €9.9 billion or €13.2 billion for the four years 2013-2016. The immediate reduction in Exchequer capital spending in 2012 was 12.2 percent on the outturn for 2011. The current plan projects a further 13 percent decline in 2013 followed by a six percent decline in 2014. The total investment is projected to stabilise in 2015 and 2016.

Table 3.2 below also includes the total public capital programme (PCP) provision¹²⁰ for 2012 of €7 billion which is one percent above the 2011 provision. While most categories of investment were projected to decline in 2012, energy was one of the areas that recorded an increase, reflected in a substantial increase in the public capital allocation for Bord Na Móna, Bord Gáis Éireann and

¹¹⁸ However, there will be development activity that may not come to the attention of agents in Dublin, and there will also be some development activity outside of the Dublin area

¹¹⁹ Appendix 4 contains further details relating to the breakdown of spending across the main infrastructure spending departments

¹²⁰ The differences between the PCP and the MAECIF (€3.07 million) represent non-Exchequer capital investment by state agencies and local authorities from their own resources and external borrowings

Eirgrid. The commercial state-owned enterprises are key investors in infrastructure provision and some, including Board Gáis and Eirgrid have significant investment plans over coming years¹²¹.

Table 3.2 Multi-Annual Exchequer capital investment provisions, 2013-2016F¹²²

(€ millions)	2011	2012E	2013F	2014F	2015F	2016F	2013-2015	2013-2016F
Estimates (Dec 2012)	4,511	3,962	3,435	3,230	3,252	3,255	9,917	13,172
Annual % change		-12.2	-13.0	-6.0	+0.7	+0.1	-	-
Total PCP	6,963	7,034	-	-	-	-	-	-

E = estimate. F = Forecast

MAECIF = Multi-Annual Exchequer Capital Investment Framework.

PCP = Public Capital Programme, which includes non-Exchequer capital investment.

Source: MAECIF from Revised Estimates for Public Service, July 2011 and February 2012 (updated December 2012)

The general rule applied with regards to the PCP provisions is that the construction related element represents approximately 75 percent of the Exchequer allocations and 60 percent of the non-Exchequer provisions.

(ii) Stimulus package¹²³

In July 2012, the Government announced the details of a planned stimulus package which will involve an additional €2.25 billion in capital investment and is expected to provide 13,000 jobs. An initial €1.4b billion will come from the European Investment Bank, the National Pensions Reserve Fund, domestic bank loans and potential private investment sources. Funds from the National Lottery and from the sale of State assets will provide a further €850 million over a longer timeframe. Some of the planned projects are as follows:

- €280 million is to be allocated to education to provide 12 new or replacement schools around the country and to progress Phase 1 of the Grangegorman Educational facility;
- €115 million for 20 primary care centres;
- The national motorway and roads network is to be upgraded with an allocation of €850m;
- The Justice sector will receive €190 million to be invested in the State Pathology Laboratory, and new garda regional headquarters. New courthouses are planned for Letterkenny, Limerick and Wexford and upgraded in Mullingar, Cork and Waterford.

For the purposes of our projections to 2015, the programme of investment has been estimated over the period 2013-2018, assuming all of the projects are to be completed by 2018. Assuming 75 percent of the overall stimulus goes into construction, an estimated €1.7 billion will be channelled

¹²¹ The projections in Table 3.1 include estimates reflecting continued investment in energy infrastructure

¹²² The figures in Table 3.1 include investment in machinery and equipment as well as in building and construction

¹²³ <http://per.gov.ie/2012/07/17/minister-howlin-announces-an-additional-e2-25-billion-domestic-infrastructure-stimulus-to-create-much-needed-jobs/>. Further details in Appendix 4

to the construction sector¹²⁴. Based on the programme of investment, the stimulus is equivalent to an annual additional €285.6 million investment in construction on average over the period 2013-2018.

A more optimistic forecast

A more optimistic forecast might include some more currently uncertain developments, for example, the potential impact of NewERA and the Strategic Investment fund (SIF), or the potential for reprioritisation of deferred infrastructure projects in the public capital programme if additional sources of finance can be secured. There are other positive indications:

- In the macroeconomic environment - there is evidence of positive albeit slow progress in relation to GDP growth and restoration of the public finances, and improved sentiment towards Ireland as evidenced in the bond markets. GDP annual growth has returned to positive territory, and Ireland is making progress towards the target General Government Balance of -3.0 percent by 2016¹²⁵. Recent developments on the bond markets show improved sentiment towards Ireland which could translate to other investments. This will help restore confidence amongst investors and lenders, and extends to the investment and spending choices made by individuals.
- The performance of exporting sectors has been encouraging. IDA Ireland has had three consecutive years of growth in net employment growth in FDI companies. Indigenous export performance has also been exceptionally strong. Exports in 2011 increased by 5.6 percent overall, while indigenous firms (EI client companies) registered an increase of 16 percent¹²⁶. There is a need for advanced/serviced property solutions ahead of demand as part of the marketing proposition for capturing mobile investment and already there are signs that availability is tightening. The importance of having suitable office accommodation (particularly in Dublin) has been highlighted by IDA Ireland in the context of meeting demands from the FDI sector over the medium term.
- NAMA has announced that it will provide new development capital (c.€2 billion) over the next three years for completion of construction work in progress and the development of Greenfield sites in its portfolio¹²⁷.
- Beginning with the rollout of water meters, future investment in water infrastructure will continue to support construction activity.
- The potential for refurbishment and renovation of existing non-residential stock to improve rental values and yield¹²⁸.

¹²⁴ The projection for construction output to 2015 only includes the investment which has been allocated to projects. Thus it excludes €638 million not yet allocated

¹²⁵ Ireland is currently subject to a Council recommendation to reduce the General Government Balance below -3 percent of GDP by end 2014 in line with the terms of the Stability and Growth Pact

¹²⁶ *Annual Business Survey of Economic Impact*, Forfás, 2012

¹²⁷ NAMA also plans to make €2 billion available in vendor finance to help stimulate movement of property from its portfolio

¹²⁸ *Ireland ViewPoint: Obsolescence and Refurbishment in the Dublin Office Market*, CBRE, July 2012

- ESRI research (with reference to demographic analysis) points to potential real demand for new dwellings based on household formations in the region of 20,000 per year to 2016. Current projections on housing reflect the impact of depressed demand, constrained personal finances and personal indebtedness. An improvement in general economic conditions combined with increased levels of certainty and confidence amongst investors will at some point unlock this latent demand.
- Although the majority of firms in the sector will remain focused on the home market, there is potential for increased internationalisation. While not the panacea for the scale of the challenge facing the sector domestically at the present time, identifying and realising opportunities overseas will play a crucial role in the development and growth of the sector in Ireland for the longer term¹²⁹.

On the downside, international macro-economic conditions remain uncertain and unemployment remains a key issue and constraining factor in relation to the residential housing market. Latest figures from the CSO *Quarterly National Household Survey* show overall unemployment at 292,000 persons in the first quarter of 2013. A positive development is the fact that unemployment has actually decreased by 29,900 or 9.3 percent in the year to Q1 2013. Those classified as long-term unemployed (LTU) decreased by 23,800 (11.6 percent) in the same period, bringing LTU to 180,500. Overall, the figures indicate that over the period of this strategy, high levels of unemployment are likely to prevail, and will continue to impact on consumer demand for construction activity.

Key barriers in growing levels of internationalisation particularly in current economic conditions include: resource constraints (including under-capitalisation), lack of market knowledge and management experience, and lack of scale (97 percent of construction enterprises engage less than 10 people).

While the overall picture is one of uncertainty, there is some evidence of latent demand, that should macro-economic conditions and overall sentiment improve will lead to increased activity over and above what the projections above suggest.

Prospects for construction employment to 2015

The prospects for construction employment will depend on the mix and employment intensity of construction projects. Research undertaken for the Construction Industry Council Submission to Government in 2009 took a sample of construction projects and estimated the labour intensity based on actual hours worked on and off-site. The research produced a figure for different projects types, ranging from 8 full-time jobs per million euro invested in civil engineering projects to 13 full-time jobs per million euro invested in building projects¹³⁰.

¹²⁹ Enterprise Ireland has worked intensively with prospective construction sector exporters on market research, management training, partnering, exposure to peer client experience and in-market supports. There continues to be a role for the State in assisting the construction sector in preparing well for successful business outcomes overseas, particularly in the current resource constrained context (see Chapter 4)

¹³⁰ *Jobs and Infrastructure: A Plan for National Recovery, Submission to the Government by the Construction Industry Council*, 2009, at <http://www.dkm.ie/uploads/pdf/reports/CIC%20Submission%20to%20Government.pdf>

The projections presented above would indicate that there will be limited opportunities for unemployed construction workers to return to jobs in the sector in the period to 2015. However, there are a number of factors that could support a higher figure than the current employment level of 96,300:

- A higher proportion of repair, maintenance and improvement/renovation projects in the overall mix;
- A growing proportion of building (residential and non-residential) projects in the overall mix (as opposed to civils projects); and
- An increase in expenditure on energy retrofitting reflecting new incentives in the area.

Barriers and enablers influencing prospect for recovery

Delivering the projected construction activity even at the exceptionally low levels forecasted in the analysis above is not without its challenges. Unlocking latent demand and returning to a sustainable growth path at levels higher than projected will require the removal of a number of obstacles. Artificially stimulating the market is not an option - recovery and growth must be based on real demand or it won't be sustainable.

A key element (and barrier) determining future performance of the construction sector is the state of the broader economy at home and internationally and the timing of recovery remains uncertain as discussed above. However, there are also barriers having a direct impact on the sector, further hampering its recovery and threatening delivery of the projected level of activity and prospects of accelerated recovery. The following issues have been highlighted in the course of consultations with industry stakeholders as key challenges to stability and recovery in the construction sector:

- Constraints on public capital spending:
 - A scaling back of capital expenditure in the context of the Troika framework and targets;
 - Cancellation and deferral of a range of proposed infrastructure projects ('stop-start'); and
 - Challenges in securing private financing to support the Government's planned investment in infrastructure, and to facilitate increased investment in required productive infrastructure.
- Private sector confidence and financing:
 - Severe constraints on the availability of finance affecting many aspects of the construction sector, including:
 - Individual indebtedness, mortgage arrears; reducing personal incomes (arising from unemployment and other factors);
 - Developers, many of whom are in serious financial difficulty and unable to raise new capital for investment;

- Contractors with impaired balance sheets, compounded by difficulties in securing bonds¹³¹; and
- Private investors/funding institutions (domestic and international) who have reduced their level of interest in the Irish property market (although there are signs of renewed interest).
- Market uncertainty - exacerbated by a lack of information relating to prevailing market conditions (particularly in relation to the commercial property sector).
- Process rigidities constraining development:
 - Planning system issues that are adding uncertainty and generating unnecessary costs and delays to the development process;
 - Issues relating to public sector procurement (both the formal process and aspects of industry practice including shadow economy activities) can have the effect of slowing down and/or creating inefficiencies in the delivery of construction projects¹³²; and
 - Difficulties specifically associated with Government contracts¹³³.
- Costs of construction/development:
 - Lack of consistency, transparency and in some cases persistently high, development levies;
 - Labour costs which although reduced are constrained from further reduction in the context of employment agreements; and
 - Cost of building materials continue to rise (although some of this is due to world prices for steel and oil based products).

Maintaining capability and competitiveness

In order to realise our ambition to restore activity to sustainable levels, there is also an imperative to maintain a focus on addressing aspects that will underpin firm level competitiveness and drive a more sustainable sector for the long-term. Chapter 5 discusses this in more detail, however some key challenges include:

- Widespread down-scaling of construction enterprises with consequential job losses and loss of expertise to the sector through emigration of skilled personnel;
- Negative perception of the sector as regards future employment prospects, dissuading potential entrants from accessing construction related education and training courses;
- Continued low take-up of ICT within the sector and an emerging competitive disadvantage in project delivery due to slow adoption of process improvement (e.g. Lean) and productivity enhancing building information modelling (BIM) systems;

¹³¹ A performance bond is a 'contract of guarantee' whereby one party (the guarantor) undertakes to pay damages to a second party (the employer) arising from breach of contract by a third party (the contractor), *Performance Bonds in Construction and Development*, Construction Guarantee

¹³² Refer to Actions section page xii and Chapter 6 (sections relating to public sector procurement, shadow economy)

¹³³ For example, industry stakeholders have highlighted difficulties in adequately pricing for risk due to instances where incomplete information has been provided to contractors, and a time consuming and costly claims process (although this is not unique to public works contracts)

- Up-skilling of a broad range of construction trades will be required so that the sector can take advantage of green economy opportunities, and to enable sector compliance with transposed EU Directives relating to climate change targets etc.;
- Management capability challenges relating to running and managing a business in the face of reduced demand and/or heavy indebtedness; and
- Low levels of engagement currently between the HEI research community and the construction industry.

There is a perception of lack of compliance amongst some firms within the sector in relation to employment laws, taxation, quality of construction and building regulations. The forthcoming Construction Contracts Bill aims to address the issue of non-payment to construction sector contractors and subcontractors who have completed work on projects to the required standard. The Bill has completed its second stage in the Dáil and has been referred to the Select Committee on Finance. The Minister for Education & Skills (DES) has recently announced that it is introducing random audits on school and DES funded third level building projects in a proactive move to verify pay and conditions compliance on such sites. The CIF Black Economy Survey, July 2012 indicates extensive shadow economy practices in the sector (for e.g. operating outside taxation provisions and labour regulations).

Conclusion

While it is unlikely that the sector can recover to a level of 12 percent of GNP by 2015, accelerated recovery could be realised if more certainty can be brought to bear in relation to the factors above and, where constraints on construction activity are in the control of Government to influence, appropriate actions are taken. It needs to be acknowledged that there is little that Government can do to compensate for the scale of the contraction in private sector construction activity. Capital expenditure by Government will continue to make a significant contribution to construction output, however this will be undertaken in the context of available resources, and maximising potential for private sector partnership.

4 Getting more from overseas markets

Introduction

As is the case internationally, the construction sector in Ireland is primarily domestically oriented and driven, and the majority of construction enterprises will continue to remain focused on the home market. However there are considerable market opportunities abroad and a number of Irish construction firms are already well established and competing successfully overseas. Irish firms have been particularly active in internationally traded services such as civil and structural engineering and contracting, mechanical and electrical contracting and power, energy maintenance and generation and also serve the global pharmaceuticals market.

For individual firms, as well as generating additional revenue, competing in overseas markets enhances competitiveness and capability; it can cushion against cyclical markets; and can also generate supply chain opportunities for Irish providers of products and services. There is potential for further internationalisation within the sector in Ireland. That is not to say that increased internationalisation is the panacea for the scale of the challenge facing the sector domestically at the present time. However, identifying and realising opportunities overseas will play a crucial role in the development and growth of the sector in Ireland for the longer term.

Internationalisation - recent trends

A number of Irish construction companies have become well established in overseas markets, some of them household names due to their profile as top performing indigenous exporting firms - for example: PM Group, CRH, Kingspan, Mercury Engineering, Dornan Engineering, Kirby Group, DPS Engineering and Designer Group. Over the last 2-3 years, an increasing number of Irish construction firms, especially those involved in professional construction services, have demonstrated an ability to achieve scale in overseas markets over a relatively short period of time (Table 4.1). Enterprise Ireland has consistently recorded export gross gains ahead of target amongst its construction sector client base through the 2009 to 2011 period.

Table 4.1 Construction sector export intensity (Enterprise Ireland client companies)

	2010	2011
Internationally Traded Construction Services	26.5%	41.5%
Construction Products/Systems (incl. Timber)	33.6%	40.6%

Source: Enterprise Ireland consultations (exports as % of turnover)¹³⁴

Current market focus

In construction services, key geographical markets are; The UK, EU and Middle Eastern markets - predominantly the Gulf Co-operation Council states (GCC). In addition, specific opportunities are apparent in Canada, Western Australia and Queensland in relation to natural resources projects.

¹³⁴ Based on a sample of Enterprise Ireland construction client companies' gross turnover and exports

The key markets for Enterprise Ireland (products and materials) clients are; UK, Benelux and France. The extent of market reach geographically is determined by a value to weight ratio being applied to products. Irish companies such as Techcrete, Shay Murtagh Limited, Oran Precast, Carlow Precast, Concast, Banagher Concrete and Kilsaran, amongst others, have supplied major projects in the UK.

Table 4.2 Current overseas market focus

Sub-sector	Key markets	Key activities	Company examples
Construction Products	UK, Western Europe (Benelux & France)	Pre-cast, insulation, fascias & soffits	Kingspan, Xtratherm, Shay Murtagh, Dortek
Construction Services	UK, Eastern Europe, Middle East, Asia, Australia and Canada	Civil contractors, project management, mechanical & electrical, architects, sector related software	Mercury Engineering, John Sisk & Sons, Project Management Ltd, Byrne Looby, ESBI
Timber	UK, Western Europe	Sawmills, boardmills, MDF, timber components	Coillte Medite, Smartply, Masonite Ltd, Eirebloc Ltd, Murray Timber products

Source: Enterprise Ireland consultations

Irish sawmills and timber processors have invested heavily in technology and innovation which has led to significant expansion in the UK market in recent years. New markets such as France have also emerged.

Routes to market

Many companies have achieved overseas expansion via joint ventures, partnering, outward direct investment (ODI) and mergers and acquisitions (M&A). Irish construction services companies also tend to bring their supply chains, or at least favour Irish suppliers, as they deliver projects internationally. Irish construction services companies in the Professional Services area more often provide their services from an Irish base with in-market services defined in the client facing area only. A number of Irish firms operate as global Centres of Excellence (PM Group and DPS are good examples), repatriate profits to Ireland from overseas contracts, and in so doing, create and maintain jobs in Ireland.

Factors of success

A major factor contributing to successful outcomes for construction firms seeking to win business overseas has been the experience gained in the delivery of world class building infrastructure in Ireland, particularly in the FDI sector (including pharmaceutical plants and data centres), utilities (wind power, transmission), and civil engineering (NDP roads programme).

Projects for companies such as Intel, HP, Microsoft, Digital Realty, Pfizer, Novartis, Lilly, Allergan, Wyeth, Genzyme, ESB, Endesa, Shell (Corrib), Bord Gáis, Railway Procurement Agency (Luas) and the National Roads Authority has given specialist providers in the Industrial and Civil Engineering sub sectors world class capabilities in designing, managing, constructing and commissioning such

facilities. This is an area of international competitive advantage for the industry and these projects are successful demonstrations of the Irish construction sector's ability to provide world class technology in globally competitive facilities.

Success is not a given however, and companies have had to fundamentally redirect resources and focus to compete in export markets, through for example:

- Focusing on high growth niche areas (e.g. off-site construction);
- Investment in R&D and automation; and/or
- Cost reductions, alongside increased productivity and output

There is scope for expanded activity amongst the cohort of firms who can offer a differentiated value proposition in the overseas context. Enterprise Ireland is working intensively with a growing number of construction companies pursuing business opportunities overseas. Tailored training initiatives (including Leadership 4 Growth management development programmes), overseas market familiarisation visits and direct financial supports have been developed¹³⁵.

The value to Ireland

A more internationalised construction sector delivers benefits to both the economy and individual firms by:

- Generating foreign earnings and repatriated profits (including corporation tax paid in Ireland);
- Creating opportunities for sub-contractors, suppliers and individuals involved in overseas contracts, much of the value of which (including employee tax) is repatriated to Ireland
- Creating a potential cushion for cyclical demand in the domestic context;
- Maintaining and creating jobs in Ireland; and
- Raising standards of professionalism, competitiveness and capability. Construction firms have reported very positive benefits in terms of enhanced management and technical capability derived from their activities in overseas markets.

A key challenge will be to ensure that the benefits to the Irish economy from Irish construction firms operating overseas can be maximised¹³⁶.

¹³⁵Towards the end of 2007, EI pursued a proactive 'recruitment' drive seeking potential exporters particularly in the construction services sub-sector. An internationalisation agenda was promoted through trade and professional bodies such as: Architects (RIAI), Engineers (Engineers Ireland and the ACEI), Quantity Surveyors (Surveyors Ireland), Project Managers (PMI), and the contracting community as represented by the Construction Industry Federation (CIF). Many presentations were given and several visits to international markets were organised

¹³⁶Enterprise Ireland have undertaken initial analysis of the value of overseas construction services contracts to Ireland, which considers the factors listed above and will inform this objective. The analysis also demonstrates that exports are an inadequate metric in capturing the true value to Ireland of the activities of Irish construction companies in overseas markets

Future potential

In terms of geographical markets, Irish construction firms can build on experience to date across all existing markets. New business opportunities in the Middle-East and North Africa are likely to emerge amongst the Gulf Co-Operation Council states (UAE, Oman, Qatar, Kuwait, Bahrain & Saudi Arabia) in the main. There is also further scope for expansion of activity in Australia and Canada, as well as sub-Saharan Africa (where the opportunity to export natural resources from these countries is driving increased infrastructure investment).

There is potential for increased activity across a range of cross market sector and technology opportunities especially in areas where Ireland has proven capability. For example:

- **Green sustainable building:** Driven by EU greenhouse gas emissions and renewable energy targets and focused on UK, France, Benelux and German markets in particular
- **Power, Energy, Efficiency, Pharmaceuticals (PEEP):** Building on existing experience, capabilities and relationships already fostered with FDI in Ireland, focused on specialised services in the area of waste to energy, wind power (turbine installation and maintenance), transmission, data centres, FDA standard pharma plants, and oil & gas.
- **Food Processing/Engineering:** Leveraging food processing industry's excellence. Nutritional, 'Nutraceuticals' and food facilities construction are areas where Ireland has both capability and capacity in global markets¹³⁷.
- **Civil construction:** Civil engineering infrastructure such as Roads, Rail (heavy and light rail), tunnelling, water and mining projects and some ports work are specialities where Ireland can compete internationally. Irish construction firms also have demonstrated expertise in hospital and stadia construction.

Irish construction companies can benefit greatly from a strong pipeline of projects from both domestic and MNC projects in Ireland which can be used as reference sites for their work and expertise in international markets. For example, public expenditure in the form of roads, ports, power and gas and other infrastructures can generate important reference sites, demonstrating state-of-art technology and management development.

The recently announced Government Stimulus package of over €2.2billion presents an opportunity through tender processes to stimulate the emergence of clusters and consortia that will go on to target overseas opportunities¹³⁸.

There is also an opportunity to leverage expertise built up within the public sector over recent years to support the Irish construction sector value proposition in an overseas context. With the assistance of Enterprise Ireland, the Geological Survey of Ireland has formed a collaborative grouping comprised of nine companies called 'Geoscience Ireland'. Group members are currently

¹³⁷ Irish reference projects for international companies such as Glanbia, Kerry group and Kepak has given Irish construction services companies, both in construction and professional services, an ability to successfully compete on a wider stage delivering projects in the USA for Mars and Hershey and in the Middle East for major providers such as Al Maria, Coca Cola and Pepsi (Source, Enterprise Ireland consultations)

¹³⁸ The construction industry has expressed concerns in relation to the operation of the current government contract in Ireland, see Chapter 6

working in Africa, the GCC and Australia. Geoscience Ireland also participates in the IBEC (Engineering Federation)/Department of Foreign Affairs led *Winning Business in Africa* cluster¹³⁹.

Key issues and challenges

Growth in export markets will be based on continued development of Irish construction firms' product offering and value proposition. The international marketplace is challenging and ever changing. Success is not guaranteed and requires investment of considerable time and resources to gain traction. There is a 'catch-22' situation in many cases. An overseas opportunity may be the means to necessary market diversification and ultimate business sustainability, but there is often a lack of capacity, capability and/or financial bandwidth within the firm to follow through and successfully capitalise on that opportunity. The following sections elaborate on some of the key barriers which will need sustained attention in order for the Irish construction sector to achieve more from overseas markets.

Management capability and market knowledge

Operating in international markets involves a learning curve that is typically elongated, risky and costly for construction firms. Opportunities have to be researched and value propositions defined and refined. The practicalities associated with doing business overseas need to be well considered and understood - for e.g. establishment costs, local tax and legal frameworks, currency differences, language barriers and cultural differences, securing required bonding etc. There are choices to be made about appropriate business models (partnering, joint ventures etc.), whether a local presence is required, what human resources are required in-market or need to be sourced overseas.

Most construction companies have small management teams with limited resources which impacts on their ability to drive growth and successfully pursue export initiatives. Inevitably, with challenging domestic conditions, the management team is often focused on technical and daily operational issues rather than grasping dynamic market development challenges or long-term vision (including overseas market penetration). Sometimes the amount of effort and resources required together with the risk of failure (and its potentially serious impact on an individual firm) can be enough to dissuade firms from making the decision to pursue overseas opportunities.

In recent years, Enterprise Ireland has worked intensively with prospective construction sector exporters through market research, management training, exposure to peer client experience and in-market supports, and has exploited opportunities for resource optimisation with a 'one-to-many' approach.

Skills for operating in international markets

The recently published EGFSN Report on *Key Skills for Enterprise to Trade Internationally* (June 2012) has identified the two areas of languages and international sales as key to helping firms realise their export sales performance generally. The needs of internationalised construction businesses are no exception in this respect. It is also worth noting that Irish construction firms are seeking to exploit business opportunities beyond Ireland's main trading partners, and often

¹³⁹ ESBI, RPA, GeoScience Ireland and Irish Rail are amongst a number of state organisations who have engaged with Enterprise Ireland to explore opportunities in relation to developing an international aspect to their overall role

encounter a steep (and risky) learning curve in relation to familiarisation with local cultural and regulatory norms.

For a sector that has been traditionally focused on local markets, there has been little incentive to devote attention within construction related training and undergraduate educational programmes to the skills essential to an internationalised business. As a result there has traditionally been a lack of material on selling, marketing and business management within the syllabi of many higher education institutions in this area; although this has begun to change (for example both WIT and UCD have introduced international business related modules to construction related courses.

More needs to be done to ensure that undergraduates in construction related disciplines are not only developing the required technical competencies but are also developing key skills and knowledge in areas such as: languages, business cultures, economics, business organisation (planning), selling, business research, and marketing.

As regards secondary education, the importance of languages, business, entrepreneurship and economics cannot be overstated.

Industry fragmentation

As noted in Chapter 2 the construction industry in Ireland has traditionally been fragmented with the vast majority of firms employing less than 10 persons. This position has not altered since the onset of the recession and in fact the largest proportional decrease in enterprises by size class was amongst firms employing between 50-249. A key challenge in securing contracts in the overseas context is overcoming issues of scale - relating to capacity and resources, competition from larger firms, and experience.

Some firms have looked to collaborate with their competitors as a means to achieving mutual gain and amass valuable overseas project experience. MEON in North Africa (www.meongroup.com), and Green Alliance Design in Libya, operated successfully until the 'Arab Spring' events overtook economic activity in the region, whereas the Thos Garland and Partners led Pivitol Group and TPE Consulting Engineers in the Gulf Cooperation Council states, and many more less formal alliances and collaborations, have demonstrated that these business models can and do work for their participants.

Enterprise Ireland has actively promoted the concept of collaboration, peer learning, and consolidation through client group participation on the Leadership4Growth and International Selling Programme, and other programmes such as Management4Growth and Excel at Export

Collaborate to compete

Enterprise Ireland has facilitated the formation of a number of sub-groups of design and contracting competence in the areas of Power, Energy Efficiency and Pharma (PEEP). The objective of these groups is to encourage companies with track records in these fields to configure themselves, and as consortia, to global markets. The initiative has seen Irish construction firms develop new international businesses opportunities in Power Generation and Waste to Energy (W2E) in the UK, Europe, Middle East and Asia Pacific; Pharmaceuticals in Germany, Sweden, UK, France and Netherlands; Nutrition in China and India; and Data Centres in Russia, Holland, Switzerland and the UK.

Selling as a means for firms to gain 'traction' in the changing international marketplace¹⁴⁰. There is a continuing need for Irish companies to develop partnering and collaboration.

Competitiveness and innovation

One of the key challenges in securing business overseas is demonstrating differentiation within the market - this may relate to cost competitiveness, but more often it will also relate to capability, productivity and levels of innovation.

Achieving cost efficiencies and increased productivity is an imperative for all firms and particularly those seeking to consistently win business overseas. The three stage Enterprise Ireland Lean Offer is ideally suited to construction sector companies however take-up for the latter stages of the programme from the sector has been slow.

Through continual prioritisation of innovation, a firm can become a leader in its field across global markets. This has been demonstrated within the construction sector through for example, the achievements of Smartglass International (intelligent windows) or Dorteck Ltd. (hygienic door systems).

The following chapter explores Ireland's emerging strengths in construction related innovation and research and the opportunity for Ireland to show leadership in the development and commercialisation of new construction products and services in the global marketplace.

Conclusion

The recent downturn in the domestic market has resulted in more indigenous firms making initial forays into overseas markets. Future successes will be built on key strengths in niche markets, a strengthening of market knowledge and management capability, collaboration amongst firms, and increased levels of innovation (adoption and new). Coming off the back of a period of intense focus on a fast growing home market, and a dramatic bust, many firms are challenged by the task of a radical refocus and restructuring. It is critical that where potential exists, firms are in a position to capitalise on opportunities.

¹⁴⁰ As a support for emerging collaborative initiatives within the sector, the Enterprise Ireland pilot Clustering Programme launched in 2012 is of particular relevance, <http://www.enterprise-ireland.com/en/funding-supports/Company/Esetablish-SME-Funding/Clustering-Programme.html>

5 Reinforcing capability and competitiveness

Introduction

The future development and success of the Irish construction sector, in terms of activities undertaken in the domestic as well as the international context, will depend on its ability to embrace the opportunities and overcome challenges that are presented by the on-going evolution of the sector on a global level. Construction services and products are changing as the market responds to influential drivers; in particular:

- Climate change and the green agenda challenge the sector to adapt buildings and products to meet energy performance and efficiency regulations and standards;
- Technological advances in materials, construction methods, ICT and global communications, continue to influence all aspects of the sector, from development of new products and services to ways of working.
- The more sophisticated consumer is demanding higher performance and design standards from construction; and
- Changing demographics, rising urbanisation and economic growth have contributed to a shift in the intensity of construction activity globally towards Asia and other developing markets (countries such as China, Brazil, Russia and India)¹⁴¹.

On the home front, there will be increased competition from overseas and the discerning customer will demand more in terms of the performance of buildings and infrastructure. In order to access business opportunities in emerging and growing markets overseas, Irish companies will need to play to their individual strengths and focus on end markets which have potential for their niche specialities (e.g. industrial construction, power generation, oil and gas, healthcare, roads and communications).

This chapter highlights a number of areas of innovation that are driving change within the sector globally. It also looks at recent analysis of productivity in the sector, and aspects relating to cost competitiveness and skills development. It notes where Ireland possesses particular strengths, and also where there are opportunities to address weaknesses and build competitive advantage. Optimising the role of the State (itself a major procurer of construction services) in driving the innovative performance of the sector is an important theme.

“Only those approaches that include measures aimed at upgrading skills and qualifications, innovation, and a ‘green’ economy will have lasting effects on the competitiveness of the sector”

Source: *Strategy for the sustainable competitiveness of the construction sector and its enterprises*, European Commission COM (2012) 433 (See Appendix 9)

¹⁴¹ It is anticipated that together, China and India will account for 38 per cent of construction growth globally over the next decade to 2020; Global Construction 2020, *Industry over the next decade to 2020*, Global Construction Perspectives and Oxford Economics, 2011

Innovation in construction

Innovation has a central role to play in how the Irish construction sector positions itself for recovery and sustainable future growth both domestically and internationally. It enables firms to differentiate their product and services offerings, develop new ways to reach customers and markets, and to improve business and operational processes and organisational structures. It is crucial for all firms whether trading in local or international markets, whether large or small, and regardless of the sector in which they operate¹⁴². Sources of innovation are varied, and range from the R&D laboratory to customers, suppliers, partners, individuals and higher education institutes. In a changing and increasingly competitive marketplace, innovation and process improvement is a critical factor in securing competitive advantage.

The construction sector globally is not known for its ability to achieve radical improvement, mainly due to its diverse, project-based and fragmented nature. However, it is also recognised that there is a need for continuous and sustained improvement where inefficiency and waste are enduring features¹⁴³. The growing sophistication of technology and ICT systems in particular offer potential in streamlining project delivery, while the green agenda is demanding innovation from the sector - where buildings alone account for 40 percent of total energy consumption¹⁴⁴.

The following sections discuss some key areas of innovation in construction at the present time that are having a significant impact globally. For the Irish sector, adoption of new technologies, modern methods of construction and delivery processes will be crucial for sustainable, competitive construction enterprises.

Offsite construction (prefabrication and modularisation)¹⁴⁵

Offsite construction (OSC) or factory based construction is a method of construction which involves the offsite manufacture of building elements. The concept and practice is by no means new, however experience in other countries such as Germany and UK indicate a change in perception over the years - from one where off-site buildings were considered to be of lower quality to one where OSC technologies are seen as setting trends in design and energy efficiencies¹⁴⁶.

Interest in OSC is gaining traction as difficult economic conditions in the construction industry have increased the appeal of lean methods and practices. The influence of the green agenda, technological advancements, developments in quality materials, the rising use of Building Information Modelling (BIM) and sophisticated manufacturing facilities now offer significant productivity gains on projects not possible before¹⁴⁷. OSC minimises weather interruption and offers a predictable and flexible solution. Based on a survey undertaken by McGraw Hill in the US,

¹⁴² *Making it Happen: Growing Enterprise for Ireland*, Forfás, 2012

¹⁴³ *Construction Innovation and Process Improvement* (1st Edition), Akintoye, A., Goulding, J.S. and Zawdie, G. (eds), Blackwell Publishing, 2012

¹⁴⁴ *Recast Energy Performance of Buildings* (Directive), 2012/31/EU

¹⁴⁵ Also referred to as 'offsite manufacturing' (OSM)

¹⁴⁶ This was exemplified by the fact that 'Pappdeckelhäuser' (literally, 'cardboard houses') was once a widely used nickname for off-site manufactured homes in Germany. *Modern Methods of Construction in Germany - Playing the Off-site Rule*, DTI, March 2004

¹⁴⁷ *Prefabrication and Modularisation - increasing productivity in the construction sector*. McGraw, Hill Construction Research & Analytics, Industry Insights and Alliances, 2011

productivity improvements are evident in reduced project schedules, decreased project budgets and a reduction in construction site waste¹⁴⁸.

The use of OSC is most prevalent in sectors such as healthcare, higher education, manufacturing, low-rise office and the public sector. OSC systems and materials continue to evolve and technological advancements in the area are driving increased adoption globally.

OSC methods can help to transform construction into a highly productive, technologically rich, and environmentally sustainable sector. For this reason it is an area that warrants consideration as the construction sector seeks to recover in Ireland. There are a small number of Irish based firms currently engaged in OSC in the building subsector, including Kingspan, Shomera, Glenbeigh Off-site, Ardmac, Techcrete and Asgard Cleanrooms. Others such as Shay Murtagh (precast concrete), Oran Precast (tunnel linings), Concast (light rail system) and Kilsaran (paving systems) are utilising OSC methods in civil engineering.

There are opportunities for Irish based sub-suppliers across a broad range of construction products and materials as the specification of products and integration of components in prefabricated elements becomes more common. Some of these opportunities will be driven by growing internationalisation amongst Irish construction companies and professional services. Increased adoption of OSC within the Irish market itself will also create opportunities for Irish firms.

HEI research activities in this area cross design, materials innovation and energy efficiency and there is scope for increased engagement between HEI researchers and industry players. Trinity Haus at TCD has championed a cross-discipline approach that includes engineering, design/architecture, ecology, microbiology, geophysics amongst other disciplines.

Building Information Modelling (BIM)

With continued advances in technology (especially IT interoperability), Building Information Modelling (BIM) has become a powerful tool in driving efficiencies and increased productivity in construction and as a result its adoption is growing. The significance of BIM is reflected by the fact that many Government bodies are now stipulating that BIM be deployed in the delivery of key public works projects (e.g. Finland, Denmark, Norway, US, UK¹⁴⁹). The reality is that a growing number of clients across both the private and public sector are seeking out suppliers who have competence in BIM and the industry is moving towards a situation where BIM is becoming an essential requirement internationally¹⁵⁰. The implications for Irish construction are clear, unless construction contractors and service providers are able to work in a BIM environment they are likely to find themselves at a serious competitive disadvantage, particularly in overseas markets.

BIM is the process of generating and managing data about a building throughout its lifecycle beginning with its design and construction, through to longer-term facilities management¹⁵¹. More importantly, it is about efficient sharing of data in a collaborative environment, including all of the partners involved in a building project who contribute to the central model and draw from

¹⁴⁸ *Ibid*

¹⁴⁹ The UK Government will require fully collaborative 3D BIM (with all project and asset information, documentation and data being electronic) as a minimum by 2016, and has established a Client BIM Mobilisation and Implementation Group to drive adoption across government, *Government Construction Strategy*, Cabinet Office, May 2011

¹⁵⁰ *Constructing the Business Case: Building Information Modelling*, Building Standards Institution, 2010

¹⁵¹ *The Construction Information Service, Briefing: Ireland*, NBS, January, 2011

it¹⁵². It is a key component in the implementation of Lean processes in a construction sector context. BIM is also an important tool for sustainability in that it allows a facility to be analysed both for its energy consumption and its other impacts on carbon generation throughout its lifecycle¹⁵³.

While Irish construction services companies are advancing in capability in the area of BIM, products companies have been slow to recognise the growing importance of BIM and its direct relevance to them in the context of product specification¹⁵⁴. The Construction IT Alliance (CITA)¹⁵⁵ which has as its mission to drive adoption of ICT within the Irish construction sector, has championed the development of capabilities in BIM. It has recently instigated a series of workshops on the subject involving international experts to promote BIM. In addition, CITA Skillnets provides training in BIM concepts and software. Trinity Haus at TCD is also active in promoting use of BIM across the sector.

HEI research initiatives have included: an SFI funded Strategic Research Cluster (ICT for Sustainable and Optimised Building Operations) led by UCC and involving industry partners from the software and construction sectors which has conducted various research projects in the area of information management and decision support in the construction and energy-management sectors; and BuildWise (2007-2010) also UCC led, which focused on development of a data management technology platform to support integrated energy & environmental management in buildings.

These are important and welcome initiatives but there is a need for increased impetus in relation to BIM take-up within the industry. In particular, the State as a client of the sector could take a more proactive role; not only from the point of view of stimulating increased adoption of BIM through procurement, but also from the point of view of the benefits to be gained from BIM itself through derived savings and efficiencies.

Materials innovation

A number of Irish building products manufacturers have proven their innovative capabilities in the application of new materials technologies, with some achieving widespread international prominence; these include Kingspan (energy conserving and renewable construction systems), Smartglass (electronically switchable glass) and Dortek (hygienic door systems).

Some of the most exciting technological advances are having a transformative effect within the construction sector. The surge in demand for greener construction projects in particular is a key force in driving innovation in the production and re-engineering of building materials and their deployment. The main developments are emerging in the following five areas¹⁵⁶:

- Nanotechnology - nano composite reinforcement of traditional materials, nano coatings;
- Natural and Bio-Materials - fibre reinforced plastics, bio plastics;

¹⁵² *Constructing the Business Case: Building Information Modelling*, Building Standards Institution, 2010

¹⁵³ *Constructing the Business Case: Building Information Modelling*, Building Standards Institution, 2010; *Use of BIM in responding to Low Carbon Construction Innovations: An Irish Perspective*, McAuley et al, 2010

¹⁵⁴ Based on consultation with Enterprise Ireland

¹⁵⁵ CITA was formed in 2001, by academics from DIT and WIT along with key construction industry professionals

¹⁵⁶ See Appendix 6 for further information in relation to each of the five areas, or refer to *Materials Shape Products: increase innovation and market opportunities with the help of creative professionals*, Hessen Ministry of Economics, Transport, Urban and Regional Development, Vol. 18, 2010

- Lightweight Construction Materials and Composites - hollow sphere structures, technical textiles;
- Reactive and Smart Materials - electro active polymers; laminated glazing with thermotropic properties; self-healing materials; and
- Optical and Energy Efficient Materials - temperature regulating PCMs¹⁵⁷, nano gel insulation, light conducting building facades.

There is strong momentum in the area of building materials innovation; however there is still a challenge in transferring technical material innovations to the marketplace. Often, materials research is undertaken in isolation from applications development with the result that future applications scenarios are recognised late in the materials development process¹⁵⁸. The fragmented nature of the construction sector itself across building product manufacturers, building contractors, architects, engineers, planners is also an inhibitor.

Ireland has developed strong capabilities in materials and nanotechnology research, including CRANN (nanotechnology), the Materials and Surface Science Institute at UL and Materials Ireland (TCD). There are a number of applied research centres in the materials field including, Materials Research Institute (Athlone IT) and South East Applied Materials (Waterford IT). Engagement with the construction sector is quite limited however.

Smart infrastructure

For Ireland, smart infrastructure deployment can and should play an important role in the context of constrained public finances, improving the capacity and competitiveness of existing infrastructure systems and generating sustainable enterprise growth¹⁵⁹.

Smart or 'intelligent' infrastructure is the application of technology to deliver a more effective and efficient infrastructure service. It uses layers of technologies, including software, sensor hardware and control and interface systems, which can be embedded in the design of new infrastructure or applied to existing infrastructure. Among the projected benefits are improved operational reliability, reduced resource usage and costs, improved environmental quality, improved governance and new enterprise and job creation opportunities.

Already smart technologies have been applied to a range of infrastructures in Ireland, including on-going development of a smart electricity grid, intelligent transport systems (barrier free tolling, traffic monitoring sensors); and smart water supply monitoring systems. There is potential for increased deployment as technology develops and the awareness of the cost benefits increases.

There is an opportunity for Ireland now both to more fully commit to smart infrastructure deployment in the context of driving competitiveness, and to assert leadership in developing innovative smart infrastructure solutions. Ireland has a recognised industrial research base in

¹⁵⁷ Phase change materials (PCMs)

¹⁵⁸ *Materials Shape Products: increase innovation and market opportunities with the help of creative professionals*, Hessen Ministry of Economics, Transport, Urban and Regional Development, Vol. 18, 2010

¹⁵⁹ Forfás has published a comprehensive analysis of the competitiveness benefits and enterprise opportunities associated with smart infrastructures, on which the commentary here is based; *Intelligent Infrastructure - Delivering the Competitiveness Benefits and Enterprise Opportunities*, Forfás, 2011

software, data management and wider ICT, and existing test-bed sites¹⁶⁰ in areas such as sensing technologies, water quality analysis and smart grids which can be further leveraged to realise commercial opportunities.

Productivity trends in Irish construction

In 2007, the construction sector accounted for 14 percent of total hours worked in the economy, up from 8 percent in 1980 and 11 percent in 2000. Its productivity performance over time is shown compared to economies in Appendix 8. Due to the need to correct for changing house prices, the measurement of value added in construction is sensitive to the price deflators employed. The EU KLEMS project has attempted to account for price changes in houses and finds that productivity in construction in Ireland has not risen over the period 1980-2007, and indeed may have fallen in the decade to 2007. This would mirror the sector's performance in the USA.

Given the sensitivity of productivity estimates to assumptions about price and quality changes, a physical measure of productivity can give a more reliable indicator of productivity in a sector such as construction. An alternative estimate can be calculated based on physical output, dividing the number of residential units completed in a particular year by the number of hours worked in the sector¹⁶¹. An adjustment is also made for changes in the size and quality of new homes. Thus, productivity increases if more or larger homes were built with the same amount of labour. Using this measure it is estimated that productivity levels in the Irish residential construction sector grew by 32 per cent from 1993 to 2003: it took 26 workers a year to complete ten homes in 2003, compared to 33 workers a decade before. This change can be attributed to increased skills in the industry, increased mechanisation, the use of more modern site management techniques and increases in the average scheme size.

There are indications that labour productivity in the construction sector improved since 2007. The sector experienced an estimated annual average growth in labour productivity of 2 percent between 2007 and 2010 (Appendix 8). The improvement in labour productivity since 2007 has in part been driven by the fact that the total hours worked in the sector decreased by more than output over the period.

Cost competitiveness

Construction is typically procured through some form of competitive bidding process, which by its nature forces actors in the sector to pay close attention to cost competitiveness, and drives more competitive behaviours to some degree. As the sector in Ireland has become more exposed to global markets, both in the domestic context and as firms seek business opportunities overseas, the imperative to increase efficiencies and reduce costs becomes more urgent. This is where increased adoption of ICTs, new forms of construction, more effective management of supply chain, lean systems and more efficient project management - for example utilising Building Information Modelling (BIM) - can make a significant difference.

¹⁶⁰ For example, SEAI's Sustainable Energy Community Programme, IBM's Smart Cities Technology Centre and ESB Networks Smart Grid project

¹⁶¹ *Perspectives on Irish Productivity*, Forfás, 2007 (Chapter 7 'Productivity in the Irish Residential Construction Industry')

Another perspective on cost competitiveness within construction is its importance in the context of maintaining an attractive environment for enterprise investment and growth. Property costs form a significant share of costs at establishment and as an on-going cost (leasing). Property costs are also a factor in the cost of living for individuals.

Not surprisingly, the cost of constructing in Ireland has declined substantially in recent years, primarily due to depressed demand and increased competition for construction contracts. The cost of constructing a prime office unit in Ireland has fallen by 32 percent since costs peaked in 2007, while the cost of constructing a prime industrial unit has fallen by over 23 percent in the same period¹⁶². There is anecdotal evidence that the downward trend in construction tender prices is driven by tendering below cost to secure contracts in a highly competitive market. This practice can have dire consequences for the contractor and it can also have an adverse impact on quality and ultimate cost on the part of the tenderer.

While lower construction costs help to improve Ireland's cost competitiveness generally, it is important that increased cost competitiveness represents structural rather than cyclical shifts. Of some concern in this respect is the fact that labour costs in construction, while reduced, have not fallen by as much as might have been expected, while the cost of building materials has increased steadily (although some of this is subject to world prices - e.g. steel, oil based products such as tarmac, pvc etc.). Local Authority development levies remain characterised by inconsistency and lack of transparency, and continue to constitute a significant portion of the cost of development. In the current depressed market, reduced construction costs have in some cases been insufficient to make development viable; for example within the office market in Dublin city, the cost of replacement/expansion of existing premises is often too expensive compared to the prevailing rents available on existing buildings.

Reinforcing capability and competitiveness in Irish construction

At the very least, in order to maintain competitiveness, Irish construction firms must comply with evolving (especially 'green') building/product regulations. Building a competitive edge, however, challenges firms to work with new materials, embrace modern methods of construction, achieve and exceed international industry standards and become more efficient and productive. This has implications for skills development. It also involves developing closer relationships: with clients to better understand their needs; with other firms (including competitors) as potential collaborators; and with academic researchers, which can lead to the development of new innovative products, services and solutions. It is critically important therefore that a focus is maintained on reinforcing capability and competitiveness in Irish construction. Some of the key challenges in this respect are outlined in the following paragraphs.

Enhancing productivity

The limited data available in relation to productivity in the sector indicates that productivity in Irish construction is improving. This is hugely important in the context of competing overseas, and in the domestic market (which is also open to competition from overseas). More can be achieved however, through greater uptake of ICT and wider adoption of Lean Construction.

¹⁶² Forfás, *Action Plan for Jobs 1.27: Benchmark and develop actions to systematically reduce excessive key business costs* (Costs of Doing Business, 2012), 2012

Adoption of Lean principles and processes

The concept of Lean is well recognised in manufacturing sectors and many service activities. Its association with construction is not as strong, but its importance for the sector is growing, not least because increasingly the consumer expects value for money, efficient delivery and high standards in product and methods of construction, but also in the context of challenging economic conditions for the construction sector internationally. While Lean can be highly effective in a single firm (be it involved in manufacturing construction products or professional services), the concept probably has greatest potential impact in a broader project delivery context, involving a range of companies working across the entire construction supply chain. It is the case that Lean principles can only be applied fully and effectively in construction by focusing on improving the whole process - meaning all parties have to be committed¹⁶³.

Although they have emerged separately, BIM is playing an increasing role in the application of Lean in construction project delivery. Lean construction has also created increased demand for the deployment of modern methods of construction including OSC, prefabrication and modularisation techniques.

In Ireland, the continued promotion of Lean through established Enterprise Ireland programmes is critically important. Moreover, promotion of Lean in a construction project delivery context, including education and training in the use of BIM, needs to be accelerated, building on initiatives such as those promoted by CITA. Experience to date has seen firms engage with the Enterprise Ireland LeanSTART entry programme but few progress through to advanced modules (LeanPLUS and LeanTRANSFORM) - i.e. full application of Lean within the firm.

ICT uptake

ICT is a key enabler of workplace productivity. As the construction sector has evolved, the importance of ICT and e-business processes has increased. It is also true to say that the construction sector has been slow in shifting from traditional modes of working to exploit the full potential of ICT. For example, the exchange of data and documentation between project teams in the construction industry is stubbornly inefficient¹⁶⁴.

The nature of the sector has been a key factor in slower ICT adoption - construction projects are temporary and typically unique, with fragmented teams and communications platforms, as well as

Lean Construction

Lean construction involves:

- basic lean principles (maximise value, minimise waste etc.);
- specific techniques applicable to design and construction; and
- their application in a new project delivery process.

The application of Lean Construction is an enabler of innovation and value generation in the sector.

Source: Introduction to Lean Construction, Blakely, R., Lean Construction Institute, presentation to ASHE 45th Annual Conference, July 21, 2008, and 'A response to critics of Lean construction', Ballard, G. & Koskela, L., in Lean Construction Journal IGLC Special Issue, pp13-22, 2011.

¹⁶³ *Lean Construction, Constructing Excellence*, available at <http://www.constructingexcellence.org.uk>, 2004

¹⁶⁴ *CITAX: a collaborative ICT standards model for the Irish construction industry*; Hore A.V. & West, R.P., 25th CIBW78 Conference, Improving the Management of Construction Products through IT Adoption, Santiago, Chile, 15th-17th July, 2008, edited by Rishmoller, L, CRC Press

a tendency for adversarial relationships and employee migration¹⁶⁵. The sector in Ireland is no different to anywhere else in this respect and it is characterised by low and slow ICT take-up and awareness, especially amongst SMEs¹⁶⁶.

The Construction IT Alliance (CITA) has, through industry and higher education partnership, worked to increase strategic use of ICT and good practice within the Irish construction sector. It is critical that efforts are not only continued, but further extended.

Skills development

Overall, the severe contraction in construction activity has led to a dramatic reduction in interest in construction related craft and technical careers, seen in the collapse in the number of new entrants to apprenticeship and third level programmes (see Chapter 2). It may be expected that the large numbers of unemployed qualified construction workers will be available to the sector when activity begins to grow again. However, the pace of recovery will be slow (see Chapter 3) and many individuals will turn to other employment options, re-training in other skills, and emigration in the short to medium term. It is plausible that the sector will encounter skills shortages (i.e. of the right skills) at a future point in time as a result of the current supply-demand configuration¹⁶⁷.

There is also a critically important skills development agenda to support innovation leadership and adoption and competitiveness in construction. This includes developing the underlying skills and capabilities required to support increased ICT adoption and use of Lean in construction discussed above. In addition a focus is required to ensure there is:

- Appropriate training and up-skilling to fully embrace rising demand and ensure compliance in the context of the 'greening' of construction;
- Strengthened management capability and leadership within construction enterprises;
- A coordinated approach to developing skills for the sector

'Green' skills

The 'greening' of construction is proceeding at a rapid pace and has relevance for all enterprise actors in the sector. Progressively higher environmental standards are becoming legal requirements in the context of EU climate change targets and associated Directives (and their transposition into standards and regulatory frameworks at the national level). Remaining competitive in construction means keeping up with and more often than not, exceeding environmental standards in force to meet increasing demand for greener construction products and services from the market generally. All of this has a consequential impact on skills within the sector.

¹⁶⁵ *An investigation into the development of knowledge management systems within the leading Irish construction companies*, in Khosrowshahi, F. (ed.) 21st Annual ARCOM Conference, 7-9 Sept, 2005, SOAS, University of London, Association of Researchers in Construction Management, Vol.1, 499-508; *CITAX: a collaborative ICT standards model for the Irish construction industry*; Hore A.V. & West, R.P., 2008

¹⁶⁶ Finding a middleware ICT solution for the Irish construction SME sector, Hore, A.V., Redmond, A. & West, R., RICS publication, Sept, 2010

¹⁶⁷ For example a survey of graduate employment trends in construction and property surveying undertaken by the Society of Chartered Surveyors Ireland indicated that the number of new graduates emerging from property and construction related courses will soon fall short of demand, *Graduate Employment Trends in Construction and Property Surveying*, SCSi, 2012

The Expert Group on Future Skills Needs (EGSFN) undertook an analysis of the future skills needs of enterprise within the green economy in 2010, which served to underline the pervasiveness of the green skilling need, across emerging ‘green’ sectors as well as for existing activities (including construction). More recently, under the EU *Build Up Skills* Initiative (BUSI), a coalition of academics and industry representative bodies undertook a comprehensive analysis of skills development requirements in response to the green revolution in construction. The report contends that the move to a building standard of near zero carbon is as fundamental a change in approach as the construction industry has experienced in many years. What has been previously considered a niche market for ‘green buildings’ or ‘eco construction’ is rapidly moving towards being the norm and all workers involved in the construction process will need to be equipped with the skills and knowledge to deliver to the green requirements of the sector.

The BUSI analysis concluded that neither the informal skills learning nor the apprenticeship system has evolved sufficiently with the movement towards low energy building construction in recent years¹⁶⁸. Furthermore, the report contends that no concerted effort has been made to up-skill the trainers in the sector to reflect the change in emphasis to building energy¹⁶⁹.

The responsiveness of the Irish construction sector to new regulations emanating from on-going transposition of new EU Directives is a real concern and there is a risk of competitive disadvantage not only in overseas markets, but also in the domestic scene. The development and implementation of a co-ordinated action plan to address the gaps identified in the BUSI analysis is critically important.

Management capability

The relationship between effective management practice and ultimate business performance is irrefutable. Highly proficient leadership, with ambition, vision and a strong management team is fundamental to identifying and anticipating changing market dynamics and to fully understand customer needs¹⁷⁰. Enterprise Ireland has worked very closely with the sector over the past 2-3 years in particular to augment management capabilities within the Irish construction sector. The Leadership4Growth programme in particular has been very effective in building inter-firm relationships and fostering the sharing of good practice, both of which are crucially important in driving innovation adoption and stimulation. There is scope for further engagement by the sector in management development programmes, necessitating continued Enterprise Ireland support for Leadership4Growth and promotion of same within the sector. The *ManagementWorks* (Skillnets)

Build Up Skills Ireland (BUSI)

The Build-Up Skills Ireland (BUSI) Project is part of the EU Build-Up Skills Initiative, supported through the Intelligent Energy Europe programme, which aims to support the training and up-skilling of craftspeople involved in the construction sector. The main driver for the initiative is to ensure that there are sufficient numbers of highly skilled construction workers which can assist Ireland, and Europe, to meet the 2020 Energy Targets.

¹⁶⁸ *Build Up Skills Ireland: analysis of the national status quo*, IEE/11/BWI/460/S12-604350, August 2012. For example, the report states that in the main construction related crafts, approximately 15,500 apprentices have been trained in Ireland in the period 2006-2011, the vast majority of whom have had little or no exposure to the revised building regulations, new standards and emerging technologies within their relevant fields as part of this training

¹⁶⁹ *Build Up Skills - Ireland: analysis of the national status quo*, 2012

¹⁷⁰ *Making it Happen: Growing Enterprise for Ireland*, Forfás, 2010

initiative provides an opportunity for smaller construction firms to increase business management skills¹⁷¹.

A more coherent approach to skills development

There are numerous agencies and bodies involved in training and education for the sector, and a variety of other organisations involved in setting regulations and standards which have an impact on education and training requirements (for e.g. DECLG, SEAI, NSAI). Against this fragmented backdrop, skills monitoring for the sector has been somewhat disjointed. A review of skills requirements of the construction sector was undertaken by FÁS on behalf of the Expert Group on Future Skills in 2008 which highlighted the scope for achieving greater efficiencies through a more co-ordinated approach to education and training provision for the sector¹⁷². Given the challenges facing the sector at the present time and a looming issue in relation to skills shortages, the need for such an approach is more urgent.

A review of the apprenticeship training model (including construction related training) by the Department of Education and Skills has commenced under the Action Plan for Jobs 2012. The review will consider costs, duration and demand with a view to providing an updated model of training that delivers to the needs of a rapidly changing economy and ensures appropriate balance between supply and demand. It will be important that the new model is flexible and can respond to future needs of the construction sector.

Leveraging public procurement (including Green PP)

By acting as technologically demanding first buyers, public procurers can drive innovation by fostering take-up of innovative products and services and stimulating innovation within the enterprise sector. This is now well recognised in government policy¹⁷³. With about 40 percent of government procurement accounted for by capital works, public procurement policy can have a significant impact within the construction sector¹⁷⁴.

The Government has recognised the important role of public procurement in achieving its headline Climate Change 2020 targets and stimulating the market for more environmentally friendly goods, services and works¹⁷⁵. A comprehensive *Action Plan on Green Public Procurement (GPP)* was

¹⁷¹ *ManagementWorks* is a training network which helps firms to improve their business performance by providing a range of subsidised, tailored programmes, supported by professional business mentors. It is an initiative of Skillnets Ltd. and is funded from the National Training Fund through the Department of Education and Skills.

¹⁷² *A Review of the Employment and Skills Needs of the Construction Industry in Ireland*, Skills and Labour Market Research Unit (SLMRU) in FÁS for the Expert Group on Future Skills Needs, 2008

¹⁷³ For example, *Buying Innovation - the 10 Step Guide to Smart Procurement*, DETI, 2009; *Government Policy on Architecture 2009-2015*, DOELG, 2009; *The Programme for Government, 2011*; *Green Tenders: An Action Plan on Green Public Procurement*, DPER & DECLG, 2012

¹⁷⁴ The annual public sector procurement budget accounts for c.12 percent of Ireland's GDP (about €14 billion in 2011). By virtue of its scale, this provides the public sector with considerable leverage to shape production and consumption trends

¹⁷⁵ Including the National Reform Programme, and also reflected in a series of prior national policy documents including: *National Climate Change Strategy 2007-2013*; *Building Ireland's Smart Economy, 2009*; *Developing the Green Economy in Ireland, 2009* and the *National Energy Efficiency Action Plan 2009-2020*

published early in 2012 and contains actions to progress GPP including the area of construction procurement¹⁷⁶.

The OPW¹⁷⁷ will shortly publish detailed guidelines for green public sector construction procurement that will take account of the six main aspects through which GPP can be embedded in the construction sector: design, energy, refurbishment, materials, ecology and site utilities, and specification.

The Action Plan on GPP has set an initial target of 50 percent of all public contracts to contain GPP core criteria. In the meantime, Ireland must also comply with the Energy Performance of Buildings Directive (EPBD) which requires that by the end of 2018, the public sector must own or rent only buildings with high energy-saving standards and promote the conversion of existing buildings to “nearly zero” standards¹⁷⁸. These are significant developments in public procurement which will challenge the construction sector to adopt greener construction methods and product specifications and become more competitive in this area.

Although there is mention of environmental management systems in improving an organisation’s environmental performance the GPP Action Plan makes no reference to the role of BIM as a tool for sustainability in construction. It is generally reported that the degree of analysis required to predict the performance of buildings or assess retrofit/upgrade options is not feasible without sophisticated BIM models or computational analysis tools¹⁷⁹. As a means to support the aims of GPP and to encourage wider adoption of BIM within the Irish construction sector, consideration should be given to the inclusion of BIM in construction procurement on a phased basis along the lines currently being rolled out in the UK.

Looking to international best practice, it is evident that Governments can perform a key role in stimulating collaborative innovation by clearly defining a problem statement as part of a pre-commercial procurement initiative¹⁸⁰. The US, Israel, Singapore, Canada and the UK (including NI) have implemented programmes that provide valuable insights. There is an opportunity for Ireland in the context of Ireland’s Climate Change 2020 targets and the need to drive collaborative R&D within the construction sector in Ireland, to progress a flagship demonstration project that would leverage construction sector firms, HEI researchers and other relevant industry actors to address a defined problem and develop exportable solutions. Key areas that could be considered in this regard include market application of smart/intelligent infrastructure, smart homes, and the adoption of technology solutions, including the use of nanotechnology in building materials.

¹⁷⁶ See Appendix 7

¹⁷⁷ Expected publication is mid 2013

¹⁷⁸ *Recast Energy Performance of Buildings (Directive)*, 2012/31/EU

¹⁷⁹ *Use of BIM in responding to low carbon construction innovations: an Irish perspective*, McAuley et al., Conference Papers, paper 6, 2012

¹⁸⁰ Pre commercial procurement is the procurement of R&D for new solutions that can out-perform those already available on the market, *Pre-Commercial Procurement: Driving innovation to ensure sustainable high quality public services in Europe*, European Commission, 2007

Collaborative research & innovation

Ireland has important research and technological capabilities of direct relevance to important areas of innovation in construction (e.g. nanotechnology; materials; environmental science, software & data analytics). Relationships between the construction sector in Ireland and the HEI research community have developed but there is scope for a much greater level of engagement, and a more proactive approach on the part of construction industry players to influence and partner on the research agenda. At a basic level there is a need to better promote the research capabilities and technical expertise that exist within the HEI sector that are of relevance to construction to the sector. Developing collaborative relationships amongst firms is also a key aspect.

Implementation of the Government's Research Prioritisation Exercise (underway) presents an opportunity for the construction sector to become actively involved in setting priorities for investment over the next five years and to develop closer relationships internally and with the HEI sector. With effective research prioritisation, the sector can build on its strengths and in collaboration with Ireland's HEI research capabilities deliver more advanced construction products and services both in Ireland and overseas, and adopt a leadership role in construction innovation.

Conclusion

The construction sector in Ireland is facing tremendous challenges at the present time. It is of crucial importance in securing its longer term future that the innovation imperative is not constrained by a lack of focus. Chapter 6 sets out a number of key actions to ensure that the sector can maintain competitiveness through greater productivity, lower costs, innovation adoption and leadership and management capability.

Research Prioritisation

The Government's Research Prioritisation Exercise has highlighted a number of priority areas of research activity that can deliver specific economic outcomes for Ireland with the benefit of targeted investment. Of relevance to the future of construction are the following areas in particular:

- Processing Technologies and Novel Materials
- Smart Grids and Smart Cities
- Marine Renewable Energy

The research prioritisation exercise will result in an orientation of public research funding towards these and other identified priority areas over the next five years.

Report of the Research Prioritisation Steering Group, Forfás & DJEI, 2011

6 Actions for a sustainable future

Introduction

Ireland needs a competitive, innovative, dynamic and sustainable construction sector because it sustains and creates jobs, generates wealth, and is capable of making a substantial contribution to economic growth through exports and foreign earnings generated.

Ireland also needs a high quality, efficiently delivered, built environment catering to an advanced society and an economy competing globally. A competitive, innovative and dynamic construction sector, with a sustainable activity profile and growth dynamic is therefore a key competitiveness factor for Ireland Inc. that needs to be maintained.

Market conditions are extremely challenging and it is accepted that interventions to artificially stimulate the market can be counterproductive. Recovery and future growth to an optimum 12 percent of GNP needs to be based on sustainable demand. What we can do is focus on removing obstacles in the way of facilitating development that is in demand. At the same time we must ensure that we have a construction sector that can deliver projects efficiently, competitively and at the highest standards of innovation, quality and professionalism.

The actions framed in this Strategy are therefore focused in five key areas:

1. Removing obstacles and restoring confidence in the domestic market
2. Driving further internationalisation
3. Embedding competitiveness and innovation
4. Ensuring the sector is skilled to deliver
5. Transforming governance

Even the most optimistic outlook for construction sector output would indicate that there will be limited opportunities for unemployed construction workers to return to jobs in the sector in the period to 2015. Tailored labour market activation measures, including Springboard, will continue to play an important role in enhancing employment prospects through reskilling and upskilling.

1. The domestic market - removing obstacles and restoring confidence

Although a greater proportion may ultimately internationalise, the vast majority of construction enterprises are oriented towards the local market. As a consequence, domestic market conditions have a huge bearing on how the sector as a whole contributes and performs from an output and employment perspective. We are currently faced with a situation where for a variety of reasons, in addition to depressed demand, output has fallen behind 'real' ('substantiated') levels of demand.

Where possible, obstacles to commencement of needed construction activity need to be addressed. In addition to short-term measures to encourage more normal market behaviours, we also need to remain focused on removing obstacles of a more structural nature so that where there is market demand, the sector can deliver with optimum levels of efficiency and responsiveness.

Government Public Capital Programme

The Government's Public Capital Programme (PCP) makes a substantial contribution to construction sector output. Currently, about half of total output from construction activities is related to public capital works (social and productive infrastructures).

The major review of infrastructure and capital investment for the period 2012-16 published in November 2011 (revised in February 2012), reflects a substantial scaling back and deferral of government expenditure over the next 4 years in the context of fiscal adjustment and reduced private sector project finance availability. Project deferrals and stoppages in particular have a direct impact within the construction sector in terms of: actual reduction in activity; increased uncertainty; reduced confidence in Ireland's PPP programme amongst investors and other parties¹⁸¹; and actual unrecoverable losses to the parties involved in bidding for projects.

Substantial progress has been made in bridging infrastructure gaps under successive NDP programmes. Despite what has been achieved, significant deficits remain to be addressed in order to underpin future enterprise development and economic growth¹⁸². The Government's Stimulus Package announced in July 2012 involving an additional €2.25 billion in capital investment is welcome, although the bulk of the investment will be undertaken in the 2014-2016 period¹⁸³. The NDFA¹⁸⁴ is working with DPER to compress the timeframe involved in preparing PPP projects to deliver to the market through to contract award from a typical 21 months to 15 months¹⁸⁵. In addition, as a confidence building measure and to encourage SME participation, DPER will be introducing some (limited) reimbursement of bid costs for the three shortlisted bidders and the preferred bidder in the unlikely event that a PPP contract is cancelled at that stage.

Continued investment in productive infrastructure and appropriate reprioritisation of deferred projects not only deliver broad economy benefits, they also provide much needed employment in construction, retain and develop construction expertise and capacity, and potentially enhance the résumés of Irish construction service providers and product manufacturers with reference projects as they seek further business opportunity overseas¹⁸⁶.

¹⁸¹ PPP market sentiment has improved over the past few months according to DPER sources

¹⁸² For example infrastructure development priorities for enterprise development have been identified by Forfás in their July 2011 submission to DPER see <http://per.gov.ie/wp-content/uploads/Forfas-submission.pdf>

¹⁸³ The package involves an estimated €1.4m of investment by non-exchequer sources such as National Pension Reserve Fund/Strategic Investment Fund; European Investment Bank, domestic banks; and other potential sources of private investment

¹⁸⁴ NDFA - National Development Finance Agency provides financial advice to State authorities undertaking major public investment projects with a capital value of more than €30 million and has direct responsibility for the procurement and delivery of all PPP projects in sectors other than transport and the local authorities

¹⁸⁵ The signing of contracts for the N11 and Newlands Cross PPPs is an important confidence building event for the Irish PPP market

¹⁸⁶ DPER is currently working on draft preliminary social procurement contract clauses which will set targets and conditionality, to take people from the live register for the duration of contracts and for apprenticeships. Initially this will be done on a pilot basis to establish their effectiveness in delivering intended results

No.	Actions	Responsibility
1	PPP and exchequer financed capital projects now scheduled for progression in the Government's Public Capital Programme and Stimulus package should proceed without delay.	DPER, NDFA & relevant Govt. Departments
2	Where there is uncertainty about future sources of finance for major PPPs it is important that initial planning/design work proceeds in order that projects can be activated at the earliest possible juncture.	DPER & relevant Govt. Departments
3	It is critical that efforts being made to identify other potential sources of private investment, and how they will operate (including Irish pension funds) are brought to a successful conclusion so that the current programme of capital investment may be delivered without harmful delay ¹⁸⁷ .	DFinance & DPER
4	Prioritise other additional projects (including some which were deferred) that will deliver productive returns to the economy as soon as financing options are identified.	DPER

Energy retrofitting

The EU is committed to reducing greenhouse gas emissions to 80-95 percent below 1990 levels by 2050¹⁸⁸. The Irish Government has committed to achieving, by 2020, a 20 percent reduction in energy demand across the whole of the economy. It is expected that the residential sector will contribute 35 percent of the targeted savings. The National Energy Efficiency Action Plan 2009-2020 aims to improve efficiency standards in older homes through retrofitting measures. Three State funded schemes have been in operation to incentivise homes and businesses to undertake energy efficiency upgrades: Better Energy Homes, Better Energy Warmer Homes, and Better Energy Workplaces (closed April 2012), and the development of market-based mechanisms, such 'pay as you save' (PAYS)¹⁸⁹, are being considered. Budget 2013 has indicated that the State will provide €35 million in seed capital in support of a new Energy Efficiency Fund to stimulate and leverage further investment in energy efficiency projects in the public and commercial sectors.

Whether incentivised by grant supports or otherwise (for example promotion of the 'pay-as-you-save' model), energy retrofitting is a labour intensive activity that supports employment in the construction sector. State funded incentive schemes have also had the added benefit of raising quality standards and skill levels through quality assurance criteria deployed as part of the schemes.

¹⁸⁷ The NDFA (working with the Department of Public Expenditure and Reform and other relevant Departments) is continuing to engage with multilateral funders in order to maximise the availability of cost-effective funding for Irish infrastructure. DPER is actively engaging with EIB in relation to their support for projects. Engagement has also commenced with the Council of Europe Bank

¹⁸⁸ COM (2011) 112 *Energy Roadmap 2050*, European Commission. According to the Roadmap, the cost efficient contribution of the buildings sector would be around 40 to 50 percent in 2030 and around 90 percent in 2050

¹⁸⁹ Since the start of 2012 there has been a notable decrease in applications across the Better Energy residential grant schemes. The PAYS concept allows consumers to finance energy efficiency measures, using the money that they would have otherwise spent on their energy bills

No.	Action	Responsibility
5	Ensure that the future potential for energy retrofitting is realised through accelerated implementation of effective incentive mechanisms under development by the Department of Communications, Energy & Natural Resources in partnership with the private sector.	DCENR

Private sector developer confidence and financing

A consequence of the economic downturn and property crash has been the emergence of severe constraints in the availability of finance, affecting all aspects of construction, including the constraints on Government expenditure and accessing alternative sources of private finance mentioned above. More generally however, the problem extends to: private individuals, developers/developer contractors, contractors with impaired balance sheets, and private investors who have reduced their level of interest in the Irish property market. In addition, contractors are currently experiencing difficulties in securing performance bonds.

The coexistence of these individual constraints at the present time has adversely affected prospects for increased construction activity even where there are indications of emerging demand. A continuing lack of activity and momentum can in turn affect investor confidence.

There is also increasing evidence of an approaching pinch-point in relation to the availability of appropriate property solutions for potential FDI clients in the medium term based on the current level of construction activity, particularly in the Dublin office market. IDA Ireland has expressed concerns about ready availability of appropriate property solutions for its potential FDI client base in the medium term based on the current level of activity particularly in the Dublin office market¹⁹⁰. In terms of Gateway locations, ability to deliver property solutions to cater for the next wave of pharmaceutical investment will also be a requirement in the medium term. IDA Ireland is currently engaged with NAMA in relation to identifying potentially suitable sites/properties for FDI.

There is no doubt that a return to a normally functioning market will depend on more than the freeing up of finance (not least a significant improvement in Ireland's economic fortunes generally). However, small movements in a depressed market can have the effect of building confidence, increase market certainty and ultimately some forward momentum. Budget 2013 has paved the way for the introduction of REITs as an additional channel of financing for investment in property¹⁹¹. This is a welcome development in a market where traditional sources of investment financing are constrained¹⁹².

The following actions are deemed appropriate to build further momentum and confidence and in particular ensure that financial constraints in the property sector do not damage prospects for enterprise investment (especially FDI).

¹⁹⁰ See IDA Ireland Press Release for launch of Annual Report, July 2012 www.idaireland.com

¹⁹¹ REITs (Real Estate Investment Trusts) provide an after-tax return for investors similar to that of direct investment in property, while also giving the benefits of risk diversification

¹⁹² The recent announcement by NAMA to make €2 billion of developer financing available over the next four years is also a positive step

No.	Actions	Responsibility
6	NAMA and IDA Ireland should continue efforts to encourage development of suitable office solutions in the Dublin area to meet anticipated FDI demand, and where appropriate, direct existing and future developer finance initiatives towards meeting medium-term supply shortages.	NAMA, IDA Ireland
7	Ensure that appropriate financing mechanisms are available so that the building requirements associated with anticipated FDI investments are adequately catered for in Gateway locations, particularly in relation to attracting the next wave of manufacturing investment.	DJEI

Market certainty¹⁹³:

Imperfect information can restrict the ability of buyers and sellers to make rational decisions: unless businesses and consumers feel that they have adequate information to make informed decisions (e.g. confident that they have up-to-date and accurate information relating to prevailing market conditions) they will be reluctant to engage with the market. International experience (e.g. Finland) suggests the provision of detailed, relevant and timely data is a key element in ensuring an efficiently functioning commercial property market. In the case of commercial property, the only fairly comprehensive and widely available data is on the Dublin office market.

The Property Services Regulatory Authority (PSRA) was established on a statutory basis by Ministerial order under the Property Services (Regulation) Act 2011, which came into effect on 3rd April 2012. As well as being responsible for the licencing of property services providers (PSPs), investigating complaints against PSPs and imposing sanctions in respect of improper conduct, and setting various other property related standards, the PSRA is also tasked with:

- The publication of residential property sales prices; and
- The establishment and maintenance of a public database containing relevant details of letting arrangements and rent reviews in the commercial property market (Section 87)¹⁹⁴.

These measures are designed to help restore confidence in the property market.

No.	Action	Responsibility
8	It is anticipated by the PSRA that the commercial leases database will be put in place during the early part of 2013 and that it will contain data relating to leases entered into after 3 April 2012 ¹⁹⁵ . Given the dearth of property related data in Ireland, it is essential that this target is adhered to. The possibility of extending the database to cover the purchase of commercial property should also be considered.	Property Services Regulatory Authority

¹⁹³ Refer also to Forfás, *Cost of Doing Business*, 2012 p44

¹⁹⁴ Section 87 of the Property Services (Regulation) Act 2011 provides for the Property Services Regulatory Authority (PSRA) to establish and maintain "The Commercial Leases Database" which it shall make available for inspection on the payment of a fee

¹⁹⁵ PQ Response by the Minister of Justice, Equality and Law Reform [33354/12], 10 July 2012

Performance bonds:

In construction, a performance bond is a ‘contract of guarantee’ whereby one party (the guarantor) undertakes to pay damages to a second party (the client) arising from breach of contract by a third party (the contractor)¹⁹⁶. A performance bond removes a considerable amount of financial risk from a construction project on the part of the client/employer and is a requirement for most construction projects today.

Current conditions within the construction sector internationally and domestically have led to revaluation of risk, for example the high rate of company failure in the industry, and the calling in of bonds. Industry sources have reported that the value of bonds in the Irish context are being set at higher levels - up to 25 percent, which is considerably higher in Ireland than in the UK and much of Europe currently. There has also been an increased tendency for more stringent bond conditions, for example extension of the bond period¹⁹⁷.

The industry also contends that bond providers are increasingly reluctant to issue bonds in excess of 10 percent and, in some cases, to remain involved in the Irish market. If performance bonds become unavailable to construction firms in Ireland, contracts may not proceed, with serious consequences for individual contractors as well as delayed development projects¹⁹⁸.

No.	Action	Responsibility
9	Include performance bonds in the construction sector as part of the review of trade financing to be undertaken by DJEI in 2013.	DJEI

The role of NAMA:

By virtue of its mandate, NAMA has a vested interest on behalf of the Irish public in seeing a return to sustainable activity in the property market. It has taken some steps to use resources at its disposal to encourage market activity but it also has an obligation to do so in a sustainable manner without creating market distortions. Important confidence building measures have been introduced by the Agency in the past twelve months, and work is on-going to generate interest from external investors in the Irish property market and to create new vehicles for channelling investment towards Irish property, including a new Qualifying Investor Fund.

These are important initiatives that have significance not only for the achievement of NAMA’s ultimate objective on behalf of the taxpayer, but can create positive reverberations within the property market generally, and generate construction activity and jobs on the ground.

¹⁹⁶ *Performance Bonds in Construction and Development, Construction Guarantee*

¹⁹⁷ Upon substantial completion of a public works contract the bond level is reduced by 50 percent for a period of 18 months to coincide with the defects liability period which is considered part of the normal performance period under a contract

¹⁹⁸ DPER has issued a circular reducing the level of performance bonds required under a public works contract (Circular 07/13 issued on 1st May 2013)

No.	Action	Responsibility
10	Continue to communicate NAMA strategy to the extent possible, recognising that an appropriate balance must be maintained between fostering market certainty and protecting commercially sensitive information in the interests of maximising returns to the Irish taxpayer.	NAMA

Effective and efficient processes

Process and regulation are a necessary to ensure that construction:

- takes place in a planned and sustainable manner (the planning system);
- is undertaken safely and with adherence to best practice (building regulations);
- that where contracts are required these are fair and reasonable to all parties and enable effective and efficient delivery of the services required (construction contracts legislation, Government Contract); and
- that when the State engages with the private sector in the procurement of construction services, the process is fair and efficiently managed (public procurement).

Feedback from industry stakeholders has highlighted a number of issues, especially in relation to the planning system, procurement, and the ‘government contract’, that merit particular attention and that if addressed would not only enhance the systems concerned for the longer term, but also help to unlock some constraints currently impeding progression of much needed development in the context of present challenges for the construction sector.

The planning system:

In relation to the planning system, various organisations and bodies have articulated specific barriers within the planning system. Many of these have taken on a heightened degree of importance in the context of reduced levels of activity in the construction sector and property market. Some issues raised include *inter alia*: uncertainty and delays in relation to planning application outcomes, including those relating to strategic infrastructure; lack of consistency in approach and meaningful engagement at pre-planning; unnecessary complexity and delays where parallel consent processes are involved; excessive costs and lack of transparency in fee structures; slow adoption of e-planning; and overly restrictive ‘exempted development’ provisions¹⁹⁹.

Dealing with legacy issues is critical to restore public confidence in the planning system. At the same time, further improvement and on-going renewal of the system is essential. Some progress is being made, for example:

- A more coordinated approach to planning has been initiated with the ‘core strategy’ and related provisions under the 2010 Planning (Amendment) Act bringing about greater coherence between national, regional and local levels, together with guidelines on spatial planning and national roads;

¹⁹⁹ Including: *The Cost-Effective Delivery of Essential Infrastructure*, Irish Academy of Engineering & Forfás, 2011; *Strategic Infrastructure Planning: Making it Better (research paper)*, Chambers Ireland, 2011; *Cost of Doing Business in Ireland*, NCC, 2011; *Planning a Better Future: A Report on Reform of the Irish Planning System*, Property Industry Ireland, 2012

- Coordination at regional level has been further enhanced with the completion of new Regional Planning Guidelines 2012-2022 incorporating regional competitiveness agendas (which take account of enterprise agency development priorities);
- *MyPlan.ie* creates a one stop shop for information about plans and other information which is relevant to planning decision-making (census, heritage sites, patterns of housing development etc.); and
- The launch of *Putting People First* (October 2012) by Department of Environment, Community and Local Government sets out a major programme of reform and development of Local Government functions, structures, operations/funding, and governance.

A number of developments are currently being progressed by the Department of Environment, Community and Local Government. Informed by the *Planning Review Report*, DECLG has commenced a comprehensive review of the existing *Development Management Guidelines* (last updated in 2007). The DECLG is also in the process of developing a *Planning Policy Statement* to better communicate the evolving nature of the planning code, and promote a better understanding of planning in general.

Alongside these initiatives, DECLG has recently completed a consolidation of the Planning Acts (in conjunction with the Law Reform Commission) and also the Planning Regulations to make them more comprehensible and accessible. A process will commence in 2013 which will lead to the development of a successor to the National Spatial Strategy (NSS). This presents an opportunity to provide greater certainty around long-term development planning priorities.

To ensure progression of development in the context of present challenges for the construction sector it is important that these activities take cognisance of user articulated barriers.

No.	Actions	Responsibility
11	<p>The on-going review of Development Management Guidelines is welcome and represents an opportunity to address any inconsistencies, inefficiencies and lack of transparency within the planning system currently; it is critical that:</p> <ul style="list-style-type: none"> ▪ the process involves engagement with users of the system to facilitate necessary enhancements; ▪ the revised guidelines have adequate statutory underpinning to ensure that they are applied in practice and in a consistent manner; ▪ and where unnecessary constraints to development are identified that are outside the current scope of the Development Management Guidelines, and require legislative change, they are urgently addressed. 	DECLG
12	<p>Preserve and continue to advance on progress achieved to date in bringing increased coherence and statutory weight behind the forward planning process, as implementation of the extensive structural changes to Local Government envisaged under ‘Putting People First’ proceeds.</p>	DECLG

13	In order to reduce the unnecessary regulatory burden and costs (to both State and applicant), introduce integrated approval processes with respect to major infrastructure projects and make a single authority responsible for granting approval to commence construction. The proposed approach to integrating the foreshore consent process within the planning system is an important step but needs to advance more rapidly.	DECLG
14	<p>The proposed development of a successor to the National Spatial Strategy is welcome and should proceed with due consideration of the following:</p> <ul style="list-style-type: none"> ▪ The core principles of the NSS should be retained; and ▪ The NSS successor should be placed on a statutory footing. 	DECLG

Public Sector Procurement:

The delivery of public capital projects will form a major component of construction sector activity over the period to 2015 and beyond. An effective and efficient procurement process is essential in ensuring that projects are delivered without delay. It is also critical that through the process, the State secures maximum value and quality on behalf of the taxpayer. In delivering to both of these aims the process must ensure that the interests of all parties (client, i.e. the State, and contractor) are considered fairly throughout the process and in accordance with the relevant procurement laws currently in place.

There are concerns from a construction industry perspective that elements of the system (including PPP process) are functioning in a manner that is both detrimental to participating firms and to the interests of the State as client. Key issues raised include:

- Cost of (repeated) pre-qualification process;
- Cost of preparing a bid (especially for projects of relatively low value) - including detailed designs up-front;
- The increasing role and cost of legal processes; and
- Lack of coherence and sharing of best practice across multiple contracting authorities.

A cost effective and efficient construction procurement system is also dependent on high industry standards of behaviour such as those relating to regulatory compliance (tax, building regulations, health and safety etc.), payment of sub-contractors and employees, and other statutory obligations²⁰⁰.

The Construction Procurement Reform Initiative has been underway since 2007 and is set to run until 2017, with objectives to achieve greater cost certainty at tender award stage, better value for money (VFM), and more efficient delivery of public works projects²⁰¹. It is timely to

²⁰⁰ The forthcoming Construction Contracts Bill aims to address the issue of non-payment to construction sector contractors and subcontractors who have completed work on projects to the required standard. The Minister for Education & Skills (DES) is introducing random audits on school and DES funded third level building projects in a proactive move to verify pay and conditions compliance on such sites

²⁰¹ A number of steps have been taken such as the introduction of standard forms of public works contract, standard conditions of engagement, pre-qualification questionnaires and a suite of model forms to encompass many of the regular tasks undertaken in the course of a construction project

reinvigorate the reform process with consideration of a broader agenda focusing on process efficiency and effectiveness and sharing of best practice²⁰².

No.	Action	Responsibility
15	Review and refresh the on-going construction procurement reform programme, to include a more comprehensive agenda, in consultation with the construction sector. Designate a senior official within the Department of Public Expenditure and Reform to lead the process.	DPER

Government contracts:

A new form of contract for all major public works was brought into effect by the Department of Finance in 2007. The objective behind the initiative was to achieve greater cost certainty, better value for money for the Exchequer and more efficient delivery of public works projects. The new contract represented a shift away from the formerly used value and measure contracts where the Employer retained all the risk.

While the new contract has increased the level of price certainty on capital procurements²⁰³, a number of issues have been highlighted by industry stakeholders, which it is contended have serious financial implications for participant contractors, and in some cases the effect of dissuading them from future engagement with public contracts. This ultimately creates challenges for the efficient delivery of essential infrastructure projects. The issues include:

- The contention that incomplete information is being provided to contractors leading to inadequate pricing for risk; compounded by
- A lengthy and costly claims process²⁰⁴;
- Excessive administrative burden even for small contracts; and
- Complications arising from submission of ‘abnormally low tenders’.

It was intended that the new contract would be reviewed after three years in operation (i.e. in 2010), however this was deferred due to a lack of project throughput at the time.

No.	Action	Responsibility
16	Undertake, with the involvement of both Government and Industry stakeholders, a review of the current contract for public works and implement any changes if required to ensure fair and reasonable terms for all parties involved, and at the same time maintain the achieved levels of price certainty which are of benefit to all parties ²⁰⁵ .	DPER

²⁰² For example, the procurement process managed by the NRA is generally considered to have been very effective

²⁰³ *Report of the Comptroller & Auditor General, 2011*

²⁰⁴ Accepting that this is not unique to public works contracts

²⁰⁵ As of April 2013, the Minister for Public Expenditure and Reform has indicated to industry representative bodies that a review will be undertaken following a recommendation from the Government Construction Contracts Committee (GCCC). The Department of Public Expenditure and Reform is currently considering the format and timescale for the review

2. Driving further internationalisation

There is potential for further internationalisation of the construction sector in Ireland building on successes to date, leveraging specialist expertise and exploiting potential for collaboration. It is important from a business sustainability perspective that the sector achieves a more balanced portfolio across local and overseas markets - and where potential exists, that firms are in a position to capitalise on overseas market opportunities.

Enterprise Ireland has rolled out an intensive programme of engagement with potential exporters in the sector through tailored training initiatives, market visits and direct financial supports and this has helped to deliver positive tangible outcomes in terms of increased turnover derived from overseas activities. The agency is continuing with this work and is focused on building on existing success and exploring new opportunities in sectors and territories. A growing cohort of construction firms are taking the necessary steps to strengthen their international value proposition through cost reductions, increased efficiency as well as product/service innovation and specialisation. This has a direct impact on prospects for success in overseas markets, but it also raises the bar amongst peers within the domestic context.

Building on the intensive engagement by Enterprise Ireland with prospective exporters within the sector, there is a need for continued focus on overcoming challenges associated with overseas market penetration. Of key importance over the period of this strategy will be to: strengthen management capability and market knowledge; and promote collaboration and the formation of consortia within the sector.

In addition to the following actions, later actions, relating to competitiveness, innovation and skills development are also critical in strengthening prospects for success in international markets.

No.	Actions	Responsibility
17	Actively promote increased participation on long and short-term Client Management Development Programmes facilitated by Enterprise Ireland, with a particular emphasis on the <i>Management4Growth</i> programme and continue to support strategic company development through the <i>Business Accelerator</i> programme and Strategic Consultancy.	EI
18	Actively promote increased construction firm involvement in Enterprise Ireland's 'Marketing Sales Strategy Review' process.	EI
19	Develop and roll out a programme of construction sector specific workshops covering legal and other technical issues that firms encounter in overseas markets.	EI
20	Build on the emerging cluster of state organisations who have engaged with Enterprise Ireland and have developed /are developing an international aspect to their overall role and support them in developing a compelling value proposition to internationalise their offer.	EI & Relevant State Bodies

3. Embedding competitiveness and innovation

It is critical that the construction sector is positioned to embrace opportunities presented by the on-going evolution of the sector on a global level. Climate change and the green agenda challenge and increasingly require the sector to adapt buildings and products to meet energy performance and efficiency regulations and standards. Technological advances in materials, construction methods, ICT (including building information modelling or BIM), and global communications are transforming all aspects of the sector from the development of new products and services to more efficient ways of working. In addition, the discerning and environmentally conscious consumer is demanding more from buildings and infrastructure in terms of design standards and functionality.

Maintaining a compliant and competitive offering against this backdrop is a concern for all enterprises involved in construction. This refers not only to firms that are operating in overseas markets; domestic construction activity and domestically produced materials and products are also increasingly subject to international competition.

Competitiveness involves cost considerations, but operating competitively in the sector today also requires adoption of new technologies and methods, and increasingly the ability to innovate. A competitive and innovative construction sector is also a factor in the location decisions around mobile enterprise investment (both FDI and indigenous). Local availability of construction expertise, high quality buildings, and advanced infrastructure, delivered at the right price and with efficiency can persuade the investor to establish/further invest in Ireland rather than elsewhere.

Recovery in demand for construction services and products of itself will not guarantee that the Irish construction sector is able to compete over the longer-term however. It must be more ambitious and proactive in relation to innovation, and cannot become complacent about competitiveness. The following actions seek to ensure that Irish construction delivers best in class on cost, quality and innovation, both domestically and internationally.

Construction costs

Not surprisingly, the cost of constructing in Ireland has declined substantially in recent years, primarily due to depressed demand and increased competition for construction contracts. It is important that increased cost competitiveness represents structural rather than cyclical shifts. Labour costs in construction, while reduced, have not fallen by as much as might have been expected. Since the peak of the construction boom, hourly wage rates show an overall decrease of 6.85 percent (Q4 2009 to Q4 2012). Hourly wages have rebounded and have started to increase since Q2 2012²⁰⁶.

Cost of living and inflation factors have an impact on the real wage for individuals as well as the potential for effective negotiation of wage reductions. It is critically important that there is a relentless pursuit of policies to improve cost competitiveness and to address the continuing high cost of living. In this regard, it is important that the impact of the new Industrial Relations Act 2012, in terms of promoting labour cost competitiveness, be assessed in due course as provided for under the Act.

²⁰⁶ Source: CSO, *Earnings and Labour Costs Survey*. A recent ruling by the Labour court has sanctioned a 2.5 percent reduction in wage rates across the sector. CIF had sought a 20 percent reduction. The court also ruled that travel allowances in the sector should be reduced and rates paid to workers entering the sector be cut by some 12.8 percent, from €13.77 per hour to €12. (Ruling available at www.labourcourt.ie - ruling no. LCR20417, Nov 2012)

The cost of building materials and aggregates has increased steadily during the recession. Although some of this is subject to world prices - e.g. steel, oil based products such as tarmac, pvc etc., increases in locally produced inputs such as aggregates and concrete have a material impact on the level of output deliverable within constrained development budgets.

Local Authority development levies remain characterised by inconsistency and lack of transparency as to how charges relate to economic costs, and continue to constitute a significant portion of the cost of development.

In the current depressed market, reduced construction costs have in some cases been insufficient to make development viable; for example within the office market in Dublin city, the cost of replacement/expansion of existing premises is often too expensive compared to the prevailing rents available on existing buildings.

To enhance the competitiveness of construction enterprises and ensure that construction costs are not creating a barrier to development, the following actions need to be taken.

No.	Actions	Responsibility
21	Introduce waivers/50 percent reduction in Local Authority development levies in line with current DECLG guidelines, in the context of the changed economic circumstances, the need to remain internationally competitive for investment, and the reduced cost of delivery of the required infrastructure for which levies are charged ²⁰⁷ .	Local Authorities/DECLG
22	Local Authorities should develop more robust and transparent charging mechanisms for Local Authority charges in accordance with the economic cost of providing development, arising from the new guidelines on development contributions and acknowledging that the adoption of development contribution schemes is a reserved function of the elected members of each planning authority.	Local Authorities

Innovation adoption and leadership

At the very least, in order to maintain competitiveness, Irish construction firms must comply with evolving (especially 'green') building/product regulations. Building a competitive edge challenges firms to work with new materials, embrace modern methods of construction, achieve and exceed international industry standards and become more efficient and productive - for example utilising Building Information Modelling (BIM) based integrated project management. This also involves developing closer relationships: with clients to better understand their needs; with other firms (including competitors) as potential collaborators; and with academic researchers, which can lead to the development of new innovative products, services and solutions.

The State as a major procurer of construction services has a role to play in creating demand for innovative solutions. The Green Public Procurement initiative²⁰⁸ is a key aspect in this respect, but

²⁰⁷ *New Development Contribution Guidelines* were published by DECLG in January 2013, available at <http://www.environ.ie/en/Publications/DevelopmentandHousing/Planning/>

²⁰⁸ *Green Tenders: An Action Plan on Green Public Procurement*, Department of Environment, Community and Local Government & Department of Public Expenditure & Reform, 2012. Green Public Procurement Guidelines for Construction are currently in preparation by the OPW

there is also an opportunity to leverage the procurement process to stimulate development of new marketable and exportable products and services through pre commercial procurement²⁰⁹.

Alongside procurement, continued emphasis on developing management capability (cognisant of the small scale of most construction enterprises); fostering closer relationships between the industry and existing HEI research capabilities (and amongst firms); and driving increased adoption of Lean principles and ICT uptake, will be extremely important. These are the focus of the following actions.

No.	Actions	Responsibility
23	Continue promotion of the Enterprise Ireland Lean Start programme and advance construction companies onto the following stages, Lean Plus and Lean Transform.	EI, Industry Rep. Bodies
24	Work with industry organisations to promote the use of Building Information Modelling (BIM) and develop the appropriate technical skills amongst Irish construction firms so that they can successfully compete in markets where BIM is widely adopted or a requirement.	EI, Industry Rep. Bodies, HEIs, Skillnets
25	Accelerate engagement by construction sector firms with third level institutes and continue to promote available programmes including innovation partnerships and innovation vouchers to support R&D projects in collaboration with the third level sector.	EI, Industry Rep. Bodies, HEIs
26	Ensure that construction related researchers and the industry are engaged with the research prioritisation implementation process such that the needs of the sector are understood, current research strengths are recognised, and gaps in research capacity are identified.	DJEI, Enterprise Agencies & Industry Rep. Bodies
27	Launch a public sector pilot Market-Led Clustering Programme to stimulate collaboration between Irish based construction sector firms, other relevant industry sectors and the research community that would act as a demonstrator internationally of Ireland's capabilities in pre-commercial product and service development, servicing national level policy goals particularly in the context of the Current National Reform Programme (especially Climate Change targets). Such a project should encompass activities through from applied research to pilot production (e.g. smart infrastructures or smart homes).	DJEI & other relevant Govt. Departments

The shadow economy

Shadow economy operators have a detrimental impact on legitimate construction businesses, undermining their capacity to compete and weakening their sustainability and potential to create jobs. Loss of revenue to the State has implications for everyone, while consumer and employee

²⁰⁹ *Pre-commercial procurement: Driving innovation to ensure sustainable high quality public services in Europe*, European Commission, 2007

protection is also compromised. Shadow Economy activity also causes reputational damage to the sector and its perceived level of professionalism overall.

The shadow economy in construction ranges from businesses understating their sales/income, under declaring cash payments or paying employees 'off the books' in cash, to individuals doing 'nixers' either in addition to their normal taxed employment or while also claiming Dept. of Social Protection (DSP) payments. It also includes companies who are not compliant with labour regulations and/or not meeting prescribed wage rates for construction workers.

There is always an element of shadow economy within any jurisdiction and it is often exacerbated in times of economic recession and high unemployment²¹⁰. The nature of building and construction work (often cash based) and the current severe contraction in the volume of work (with increased competition for scarce contracts) in Ireland over the past six years suggests that the sector is likely to account for a significant share of shadow economy activity at the present time.

Tackling the shadow economy has had heightened focus in recent years. The DSP is currently implementing a *Fraud Initiative* which involves emphasis on inter-agency cooperation and focus on sectors and activities (especially cash based businesses) which pose the highest risk²¹¹. The shadow economy is a stated corporate priority for Revenue, and a risk based approach supported by intelligence collation, data matching and streetscape operations is underway. Revenue have also made adjustments to the Relevant Contracts Tax and VAT (reverse charge) to promote tax compliance specifically within the construction sector.

Revenue and DSP work closely together through a High Level Liaison Group, on-going data exchanges, and on the ground joint investigations regionally and locally. The National Employment Rights Authority (NERA) is also involved in joint investigations with Revenue and DSP. Public procurement construction projects were amongst a number of specific joint investigations carried out in 2012 in conjunction with NERA and other compliance agencies and involved high visibility site visits and inspections on construction sites.

The Hidden Economy Monitoring Group chaired by Revenue facilitates engagement with business and employee representative organisations and other state bodies on shadow economy developments. More recently, four regional monitoring groups have adopted a more localised response, and include representation from the construction sector²¹².

Experience to date has demonstrated that without active co-operation (and sharing of intelligence) amongst all stakeholders, including the general public and industry, the work of State bodies such as Revenue is less effective in dealing with the shadow economy. The fact is that the shadow economy thrives where the environment is conducive, which includes instances where the consumer turns a blind eye.

More can be done to address cultural acceptance of shadow economy activity and promote collective responsibility. There are also opportunities to drive compliant behaviour. For example, statutory registration with the safety supervisory bodies for gas and electrical installers (RECI,

²¹⁰ Because of its nature the extent of shadow economy activity is difficult to measure accurately. A recent international study estimated the shadow economy in Ireland to be in the region of €20 billion or about 12.8 percent of GDP in 2012 (see Chapter 2)

²¹¹ DSP Fraud Initiative 2011-2013: <http://www.welfare.ie/en/downloads/fraudinitiative2011.pdf>

²¹² While these groups have achieved a high level of cross agency engagement, they have been less effective in generating actionable leads for statutory bodies to pursue

ECSSA, and RGII²¹³) currently does not require contractors to demonstrate tax compliance. The actions below are aimed at broadening the scope of responsibility to more effectively combat shadow economy activity in the construction sector.

No.	Action	Responsibility
28	Develop and implement an awareness/advertising campaign to communicate the issues and to highlight the positive impacts of a reduction of shadow economy activity on the Irish economy, jobs and society, as well as the negative consequences of dealing in the shadow economy for the consumer personally, utilising the construction sector as a key example.	Revenue, DSP, DJEI & Industry Rep. Bodies

4. Skilled to deliver

The dramatic contraction of the domestic industry has changed the construction skills landscape utterly; we have seen a collapse in new entrants, and an industry less attractive as a career option.

It may be expected that the large numbers of unemployed qualified construction workers will be available to the sector when activity begins to grow again. However, the pace of recovery will be slow (see Chapter 3) and many individuals may turn to other employment options, re-training in other skills, and emigration in the short to medium term. It is plausible that the sector will encounter skills shortages (i.e. of the right skills) at a future point in time as a result of the current supply-demand configuration²¹⁴ and there is some concern about future capacity to deliver in the context of a return to growth. It is also the case that many small construction enterprises are facing business challenges arising from the downturn that owner/managers are ill-equipped to deal with.

In the meantime developments in the green economy, including transposition of EU Directives geared towards meeting Climate Change 2020 targets are generating on-going need for up-skilling across the sector. The Recast Energy Performance of Buildings Directive presents a considerable challenge for the sector²¹⁵.

The drive to internationalise has exposed capability issues amongst an industry and its employees who have to date been oriented in training and in career experience towards the local market. Competing internationally demands a high degree of professionalism overall, which extends across business processes, customer relationship management, financial management, project management and regulatory compliance.

²¹³ Register of Electrical Contractors in Ireland (RECI), Electrical Contractors Safety & Standards Association (ECSSA), and Register of Gas Installers Ireland (RGII)

²¹⁴ For example a survey of graduate employment trends in construction and property surveying undertaken by the Society of Chartered Surveyors Ireland indicated that the number of new graduates emerging from property and construction related courses will soon fall short of demand, *Graduate Employment Trends in Construction and Property Surveying*, SCSi, 2012

²¹⁵ Refer to SEAI for additional information on the Recast EPBD at http://www.seai.ie/Your_Building/EPBD/

Ensuring an appropriate quantity and quality of the upgraded skills and expertise needed for a competitive construction sector for the future necessitates a continued focus on the demand and supply requirements of the sector and the following key actions are recommended.

No.	Actions	Responsibility
29	Ensure that the review of the apprenticeship model recently initiated by the DES results in a model that can provide for the future needs of the construction industry in the context of a return to increased activity levels, and has an appropriate level of flexibility to deal with the cyclical nature of the sector (and apprenticeship registration) over the longer term.	DES, Industry Rep. Bodies
30	Ensure that the Build-Up Skills Ireland initiative progresses through to implementation of the road-map and actions to address skills gaps relating to the 'greening' of construction.	DES & DJEI
31	Undertake targeted promotion of the Skillnets pilot <i>ManagementWorks</i> management development training initiative for SMEs to the construction sector to maximise take-up from the sector which is currently low.	Skillnets, Industry Rep. Bodies
32	Ensure that all construction related undergraduate courses include compulsory modules relating to international business/sales and government tendering (in Ireland and overseas).	HEIs
33	Continue international graduate placement programmes that have received a strong industry endorsement including the Enterprise Ireland Graduates for International Growth programme, IBEC Export Orientation Programme and Farmleigh Fellowships, and actively promote to the construction sector.	EI, IBEC, Industry Rep. Bodies
34	Work with the Construction Enterprise Clearing House ²¹⁶ to facilitate a coordinated approach to defining the construction skills development agenda.	DES, SOLAS, Industry Rep. Bodies

5. Effective Governance

The sector interacts with the Government system on a number of levels, for example; through the planning system and building regulations (DECLG); public procurement and PPPs (D Finance, DPER, NDFA); employment law, industrial relations and health & safety (DJEI and its agencies); and education & training (DES and its agencies)²¹⁷. It is important that oversight of the industry is informed by meaningful and timely data relating to the sector's performance.

A gap in terms of achieving overall coherence is the absence of a mechanism for collective engagement between Government and the industry on matters concerning the long-term development of the sector. This includes considerations about the ability of its constituent

²¹⁶ See Action 35 below in relation to the establishment of a Construction Enterprise Clearing House (CECH)

²¹⁷ The Government's *Action Plan for Jobs 2013* tasks the Department of Finance with leading 'better cross-Government co-ordination of action on the property market' (Action no. 294)

enterprises to serve emerging needs and markets (including the public capital programme); and relates to capability building (management development, green skills, Building Information Modelling etc.), cost competitiveness and innovation²¹⁸.

This is critically important in terms of the State’s interest as a major client of the sector, its interest in maximising the returns to the economy from construction activity in terms of jobs and value generation, and its interest in ensuring adequate provision of productive infrastructure and buildings to meet the needs of economy and society. Equally important is the need for a coherent industry voice on the developmental agenda for the sector.

No.	Actions	Responsibility
35	<p>Establish a <i>Construction Enterprise Clearing House</i> (CECH) - comprising senior officials from the key Government Departments (DJEI, DECLG, DPER, DFinance) and industry representatives from the main construction sub-sectors, and Enterprise Ireland. The CECH chair will be a matter for Government decision, and a joint chair is recommended. The CECH will inform on-going development of the sector and the coordination of relevant policies.</p> <p>The actions contained in this report will form the basis for an initial agenda for the CECH²¹⁹.</p>	Government
36	Re-establish centralised collection and analysis of appropriate data indicators (previously undertaken by DECLG) which will facilitate effective monitoring of construction sector output with reference to optimum sustainability levels.	CSO, DECLG

Conclusion

The dramatic and unprecedented transition of the Irish property industry from boom to bust has not only brought about a collapse of construction and related activity. Reputational damage has also been done, the extent of which is impossible to quantify, but is manifest in a number of areas, such as: a deterioration of standards²²⁰ and professionalism in some areas within construction; the role of high risk speculative development in the construction collapse; the reliability of property as a secure investment; the prospects for secure employment in construction and related activity; and confidence in the planning system. To varying degrees reputational damage has undermined the confidence of investors in the sector; it has also has affected relations between the sector and Government; and it has impacted on the decisions of prospective new entrants to construction related education.

²¹⁸ Enterprise Ireland partially fulfils this role although its principal mandate is to promote increased internationalisation of the sector. Most construction enterprises fall outside its remit

²¹⁹ Engagement with other EU member states in relation to the ‘Strategy for the sustainable competitiveness of the construction sector and its enterprises’ and emerging initiatives will also be an important consideration for the CECH; see Appendix 9

²²⁰ The high profile Priory Hall and ‘pyrite’ controversies are cases in point

It is also important to bear in mind that a number of the issues raised in this report when considered collectively indicate that there is scope for a higher degree of professionalism overall within the sector and its governance - for example, firm level compliance with legal obligations in relation to employment law, taxation and building regulations; a more co-ordinated and responsive approach to skills development and innovation (including management capability); and a positive and more productive relationship between the industry and government in delivering the Public Capital Programme.

It is now opportune to establish better engagement between the industry and government, to achieve the ambition set out in this Strategy (page viii) for the future sustainable development of the sector, with a firm focus on optimising the contribution of the sector to the economy, and building a degree of professionalism overall that ranks amongst the highest standards internationally.

Appendices

Appendix 1: Consultative grouping

Hubert Fitzpatrick	Construction Industry Federation (CIF)
Finola McDonnell	Property Industry Ireland (PII)
Peter Stafford	Society of Chartered Surveyors (SCSI)
John Power	Engineers Ireland
Joe Millar	Royal Institute of the Architects of Ireland (RIAI)
Michael Moriarty	Association of Consulting Engineers of Ireland
Dermot Reidy	Enterprise Ireland
Mary Buckley	IDA Ireland
Tom Halpin	Sustainable Energy Authority of Ireland (SEAI)
Mike Jones	BAM Contractors
Eamon Booth	John Paul Construction
Philip Crampton	G&F Crampton
Mick Lynam	PM Group
Derry Scully	Bruce Shaw
David McKeown	Kilsaran Group
Annette Hughes	DKM Economic Consultants

Forfás research, analysis and reporting²²¹

Céline McHugh

Maria Ginnity

²²¹ Both Chapter 2 and Chapter 3 draw on data analysis by DKM Economic Consultants commissioned by Forfás as part of the background research for this Strategy

Appendix 2: European countries: building and construction output

Figure A2.1 Building and construction output as a percentage of GDP, Euroconstruct countries

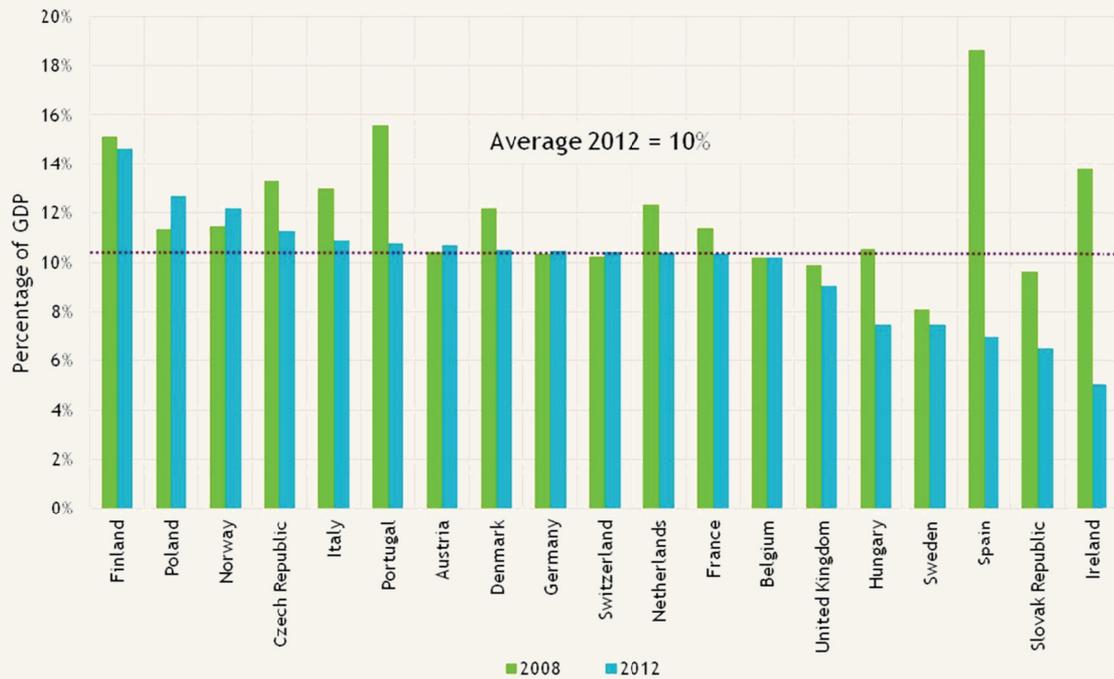


Table A2.1 Building and construction output as a percentage of GDP, Euroconstruct countries

	2008	2012		2008	2012
Finland	15.1%	14.6%	Switzerland	10.2%	10.4%
Poland	11.4%	12.7%	Netherlands	12.3%	10.4%
Norway	11.4%	12.2%	France	11.4%	10.3%
Czech Republic	13.3%	11.2%	Belgium	10.2%	10.2%
Italy	13.0%	10.9%	United Kingdom	9.9%	9.0%
Portugal	15.6%	10.8%	Hungary	10.5%	7.5%
Austria	10.4%	10.7%	Sweden	8.1%	7.5%
Denmark	12.2%	10.5%	Spain	18.6%	7.0%
Germany	10.3%	10.5%	Slovak Republic	9.6%	6.5%
Ireland	13.8%	5.0%			
Western Europe (EC-15)	11.8%	9.9%			
Eastern Europe (EC-4)	11.5%	11.0%			
Euroconstruct Countries (EC-19)	11.8%	10.0%			

Source: Euroconstruct June 2012

Appendix 3: Construction as a percentage of GNP/GDP

Table A3.1 Construction as a percentage of GNP and GDP 2011-2015F

	2011	2012E	2013F	2014F	2015F
GNP Current Prices, €m.	127,016	126,761	-	-	-
GNP Constant 2010 Prices, €m.	126,983	126,475	127,740	130,167	133,291
GDP Constant 2010 Prices, €m.	158,726	159,678	163,032	166,944	171,619
% volume change in GNP	-2.5	-0.4	1.0	1.9	2.4
% volume change in GDP	1.4	0.6	2.1	2.4	2.8
Construction Output					
Construction Output, Current Prices, €m.	9,408	8,079	-	-	-
Construction Output, Constant 2010 Prices, €m.	9,919	8,397	8,080	8,488	8,979
% volume change in Construction Output	-18.6	-15.3	-3.8	5.1	5.8
Construction as % of GNP					
Current Prices	7.4	6.4	-	-	-
Constant Prices	7.8	6.6	6.3	6.5	6.7
Construction as % of GDP					
Current Prices	5.9	5.0	-	-	-
Constant Prices	6.2	5.3	5.0	5.1	5.2
'Optimum' level of Construction Activity? - Constant 2010 prices					
12% of GNP = €m.	15,238	15,177	15,329	15,620	15,995
15% of GNP = €m.	19,047	18,971	19,161	19,525	19,994
10% of GDP = €m.					
15,873	15,968	16,303	16,694	17,162	
12% of GDP = €m.					
19,047	19,161	19,564	20,033	20,594	

Source: DKM Economic Consultants analysis for Forfás (using CSO and DKM estimates)

Appendix 4: Capital investment provisions 2013-2016

Within the Exchequer allocation, the main Government departments which generate building, construction and civil engineering investment opportunities are:

- **Transport, Tourism and Sport (TT&S)**, responsible for investment in the national and non-national road network, public transport, maritime, tourism and sport infrastructure.
- **Environment, Community and Local Government (ECLG)**, responsible for investment in social housing, water, waste management, library service, fire and emergency services and rural development programmes,
- **Education and Skills (E&S)**, responsible for investment in primary, secondary and third level educational infrastructure, and
- **Health**, responsible, in conjunction with the Health Services Executive, for investment in hospital and health infrastructure.

The four departments between them are expected to account for 70 percent of the total capital investment over the period 2013-2016.

Table A4.1 Projected direct Exchequer capital investment provisions, 2013-2016F for the main infrastructure spending departments

		2011	2012E	2013F	2014F	2015F	2016F
		<i>millions of euro</i>					
MAECIF		4,512	3,962	3,435	3230	3252	3255
<i>of which</i>	DTT&S	1,502	1,245	900	879	818	818
	DECLG	1,048	861	740	528	571	574
	DE&S	501	430	414	475	475	415
	Health	399	398	397	390	390	390
		<i>Annual % change</i>					
		2012 % share	2012E	2013F	2014F	2015F	2016F
MAECIF		100	-12.2	-13.3	-6.0	0.7	0.1
<i>of which</i>	DTT&S	31	-16.8	-27.7	-2.3	-6.9	0.0
	DECLG	22	-15.3	-14.1	-28.6	8.1	0.5
	DE&S	11	-22.7	-3.7	14.7	0.0	-12.6
	Health	10	+14.7	-0.3	-1.8	0.0	0.0

Source: MAECIF Expenditure Report 2013, December 2012, DPER (Forecasts 2013-2016); DPER Databank (2011 & 2012E) - <http://databank.per.gov.ie/>

Stimulus Package

In July 2012, Minister for Public Expenditure and Reform, Mr. Brendan Howlin T.D. announced the Government plans for an additional €2.25 billion investment in public infrastructure projects. The bulk of the funding is to come from a combination of the NPRF; European Investment Bank/Council of Europe Bank; Domestic banks; and other potential private investment sources.

Key Projects

- Education: €280 million two PPP schools bundles (6 new/replacement schools each); DIT Grangegorman
- Health: €115 million - 2 primary care centre bundles (10 centres)
- Transport: N17/18 Gort to Tuam; M11 Gorey to Enniscorthy; N25 New Ross By-pass; Galway city by-pass (currently on hold - legal proceedings)
- Justice: State Pathology Laboratory

The plan envisaged commencement of procurement for Health projects by end 2012 with construction starting in 2014; procurement on Education projects commencing in 2013 on a rolling basis with completion of the schools bundles during 2017 and 2018; procurement of the Justice projects commencing in 2013 and continuing during 2014 and 2015; and procurement of projects in the roads sector commencing in 2013. Timelines are indicative and subject to how quickly tender competitions are progressed and the availability of private finance²²².

²²² In June 2013, Minister Howlin issued an update on the Phase 1 PPP Stimulus Plan and announced an allocation of €150 million in exchequer funding towards a new PPP pipeline of projects under the Plan (see <http://per.gov.ie/2013/06/05/investing-in-infrastructure-jobs/>)

Appendix 5: Construction output scenario 2012-2015F

Table A5.1 (a) Overall scenario for construction output 2012-2015F

	2012	2012E	2013F	2014F	2015F	2012E	2013F	2014F	2015F
	<i>Current prices €m</i>		<i>Constant 2010 Prices €m</i>			<i>Annual % change in volume</i>			
Total All Construction	8,079	8,397	8,080	8,488	8,979	-15.3	-3.8	5.1	5.8
<i>Of which</i>									
New Construction	4,336	4,311	4,133	4,547	4,926	-18.6	-4.1	10.0	8.3
RM&I Construction	3,743	4,087	3,946	3,942	4,053	-11.6	-3.4	-0.1	2.8
Construction Output:									
As % of GNP	6.4	6.6	6.3	6.5	6.7				
As % of GDP	5.0	5.3	5.0	5.1	5.2				

Table A5.1 (b) Scenario for construction output 2012-2015F - Residential Construction

	2012	2012E	2013F	2014F	2015F	2012E	2013F	2014F	2015F
	<i>Current prices €m</i>		<i>Constant 2010 Prices €m</i>			<i>Annual % change in volume</i>			
Total New Dwellings Built		4,500	4,000	5,500	7,000				
Private Housing	3,168	3,520	3,399	3,731	4,079	-15.0	-3.4	9.8	9.3
Public Housing	384	427	366	292	297	-49.6	-14.2	-20.2	1.6
Sub Total	3,552	3,947	3,765	4,023	4,376	-20.8	-4.6	6.8	8.8

Table A5.1 (c) Scenario for construction output 2012-2015F - Private non-residential

	2012	2012E	2013F	2014F	2015F	2012E	2013F	2014F	2015F
	<i>Current prices €m</i>		<i>Constant 2010 Prices €m</i>			<i>Annual % change in volume</i>			
Industry	339	324	327	335	345	65.9**	0.9	2.2	3.3
Commercial	216	207	209	214	220	7.6	1.2	2.3	2.9
Agricultural	87	90	89	90	93	-27.5	-1.0	1.6	2.9
Tourism	31	31	30	30	31	-12.9	-2.7	0.9	2.4
Worship	<u>21</u>	<u>21</u>	<u>20</u>	<u>21</u>	<u>21</u>	<u>-22.7</u>	<u>-3.9</u>	<u>0.4</u>	<u>2.4</u>
Sub Total	694	673	676	690	711	17.2	0.4	2.0	3.0

Table A5.1 (d) Scenario for construction output 2012-2015F - Productive Infrastructure

	2012	2012E	2013F	2014F	2015F	2012E	2013F	2014F	2015F
	<i>Current prices €m</i>		<i>Constant 2010 Prices €m</i>			<i>Annual % change in volume</i>			
Roads	809	799	781	819	787	-14.7	-2.3	4.9	-3.9
Water Services	661	663	607	525	537	-17.0	-8.6	-13.5	2.4
Airports/Seaports	61	60	45	44	42	-24.4	-24.6	-1.9	-5.3
Energy	1,000	986	1,023	1,087	1,177	8.3	3.7	6.2	8.3
Transport	250	248	192	189	181	-24.1	-22.4	-1.7	-4.2
Communications	123	121	102	97	96	-19.7	-16.0	-4.7	-0.5
Sub Total	2,903	2,878	2,750	2,761	2,820	-10.2	-4.4	0.4	2.2

Table A5.1 (e) Scenario for construction output 2012-2015F - Social Infrastructure

	2012	2012E	2013F	2014F	2015F	2012E	2013F	2014F	2015F
	<i>Current prices €m</i>		<i>Constant 2010 Prices €m</i>			<i>Annual % change in volume</i>			
Education	507	492	473	564	597	-20.5	-3.9	19.3	5.8
Health	277	266	259	279	290	-17.8	-2.3	7.7	3.8
Public Buildings	80	79	101	119	133	-18.7	27.7	17.9	11.7
Other Social	66	63	55	53	53	-45.2	-13.1	-4.5	0.7
Sub Total	930	900	888	1,015	1,073	-22.1	-1.3	14.3	5.7

Source: DKM Economic Consultants analysis for Forfás, 2012

Notes:

1. The value of construction output includes new and repair and maintenance projects.
2. The above forecasts exclude activity in the black economy.
3. The constant price data is based on 2010 prices in order to be consistent with the CSO National Accounts.
4. Separate deflators are used for each segment of output based on consultations with the industry and on tender price indices published by the SCSi, Bruce Shaw and Davis Langdon PKS.
5. The figures for construction as percentage of GNP and GDP for 2012-2015 are based on constant prices, apart from the first column which uses current prices.

* * The 2012 estimate is not directly comparable with 2011 and preceding years as it includes a revised figure for the value of construction output associated with industrial and office building, due to an increase in FDI development activity captured in a survey of Quantity Surveyors for the 2012 SCSi on the Irish construction Industry, available at <http://www.dkm.ie/uploads/pdf/reports/Irish%20Construction%20Industry%20in%202012%20DKM%20SCSI.pdf>. Demand in the industrial market was reported to be fuelled by new projects from companies which were expanding activity or in growth sectors, including new FDI announcements. Much of the work reported related to data processing centres and factories, while announcements in the FDI sector from companies like Intel, Amgen and Eli Lilly, were expected to boost the volume of industrial construction work in the medium term.

Appendix 6: Materials innovation - an overview

- **Nanotechnology** - at nano scale (one thousand millionth of a metre), structures and particles of raw materials can furnish material surfaces with additional functional properties. Self-cleaning roof tiles and windowpanes, fireproof insulating material, dirt repellent wallpapers, air cleaning paving, scratch resistant finishes or anti-fingerprint coatings are amongst the emergent product innovations. The performance, durability, and strength-to-weight ratio of traditional materials such as steel, concrete, glass, and plastics can be dramatically enhanced with nano composite reinforcement.
- **Natural and Bio-Materials** - scarce resources are driving development of material solutions that guarantee sustainable use of raw materials and energy. Emergent products include 'sea balls' - matted seaweed fibres used without additives as an insulating material with fire prevention properties; waste or algae-based foams; and plastics reinforced with natural fibres (hemp, sisal, albaca, kenef and flax). The exciting field of bio-plastics is set to add significantly to the range of sustainable raw material alternatives in construction²²³.
- **Lightweight Construction Materials and Composites** - new building materials with bespoke properties, often achieved by combining two or more materials (including nanotechnology structured materials) have emerged in the drive for increased product differentiation, new legal directives and mounting environmental constraints. Developments in the area of metallic or ceramic hollow-sphere structures; foam structures (including sound absorbing composite boards); technical textiles; translucent concrete etc. are key areas of innovation.
- **Reactive and Smart Materials** - these include materials that not only retain traditional mechanical properties but also possess 'smart' or 'intelligent' characteristics; they include for example: electro active polymers; laminated glazing with thermo-tropic properties (i.e. can change their transparency and reflective characteristics in response to light); self-healing materials (i.e. can autonomously rectify cracks in a material - e.g. self-healing bio-concrete); or façade elements with air cleaning properties (incorporating nano-titanium-dioxide particles).
- **Optical and Energy Efficient Materials** - again in the realm of so-called 'smart' materials, the energy conservation imperative in particular has driven the development of materials with special energy efficient properties and functions; for example, temperature regulating phase change materials (PCMs)²²⁴, which when integrated into plasterboards or construction slabs, can reduce the cost of air conditioning systems; thin-film and dye sensitised solar cells which have the potential to create electricity generating products; or light-conducting building façades incorporating heat insulating nano gel intermediate layers.

Source: *Materials Shape Products: increase innovation and market opportunities with the help of creative professionals*, Hessen Ministry of Economics, Transport, Urban and Regional Development, Vol. 18, 2010

²²³ For example, scientists at the University of Duisburg-Essen and the Helmholtz Centre for Environmental Research have discovered an enzyme in a bacterial culture which could be used to produce a precursor to MMA - the foundation monomer for acrylic glass; *Materials Shape Products: increase innovation and market opportunities with the help of creative professionals*, Hessen Ministry of Economics, Transport, Urban and Regional Development, Vol. 18, 2010

²²⁴ PCMs have been in use for some time as hand and pocket warmers

Appendix 7: Green public procurement in the construction sector - actions

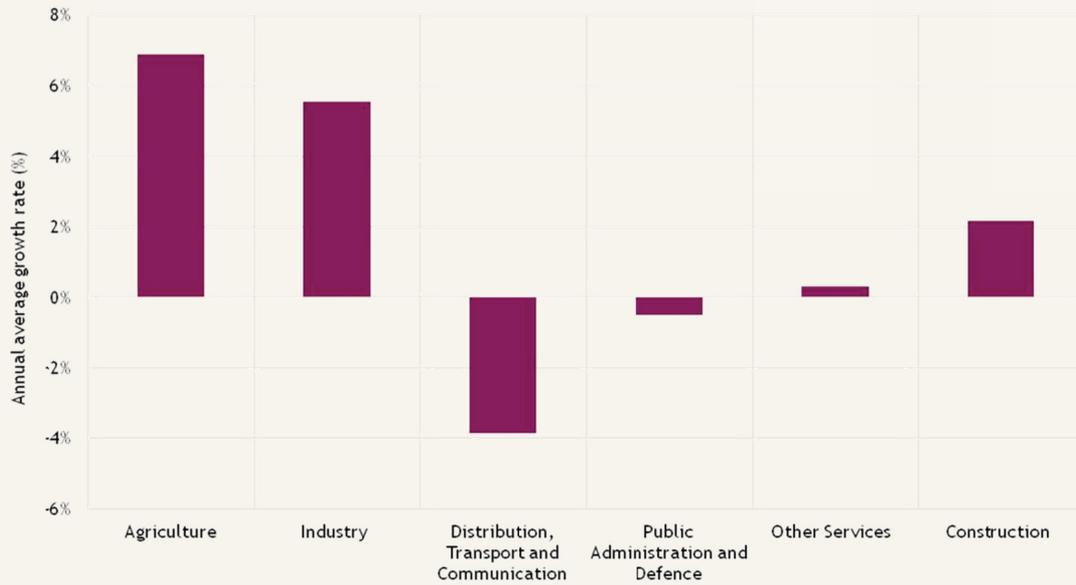
The following is a summary of actions proposed for the green procurement of construction products and services.

6. Produce guidelines for public sector construction procurement, including assessment criteria. While taking into account cost efficiency, develop initial evaluation criteria and relative weightings under the six main headings of Design, Ecology and Site Utilities; Energy; Materials; Refurbishment; and Specification.
7. Integrate energy efficiency into construction projects in accordance with the three-part energy efficient procurement programme (described in the chapter on Energy).
8. Develop a target B.E.R. for all new construction projects (c.f. Action 9 of the National Energy Efficiency Action Plan).
9. Public bodies will only purchase (or lease) buildings with a B.E.R. of B3 or higher with effect from 1 January 2011 and A3 or higher from 1 January 2015 in compliance with the European Communities (Energy End-use Efficiency and Energy Services Regulations 2009 (S.I. No. 542 of 2009)).
10. Use innovative procurement initiatives such as Energy Service Company contracting to facilitate the aim of all public sector buildings over 1,000 square metres having their D.E.C. improved to D1 or higher by 2020 as envisaged in the National Energy Efficiency Action Plan 2009-2020.
11. Implement the FLEGT Action Plan in Ireland (by 2011).
12. Establish a system of Due Diligence for operators placing timber products on the market for the first time (commencing 2013).
13. By 2017, it will be mandatory that construction timber will be procured only from verified legally logged sources and from independently verified sustainable sources.
14. Conduct research projects to broaden the criteria for evaluation in the GPP Guidance Document.
15. Ensure continued updating of the guidance document for GPP in the construction sector, to reflect most recent data, research and standards.
16. Develop database of relevant properties and evaluation criteria for the most common building materials and products.
17. Expand database and evaluation criteria to cover all building materials and products.
18. Maintain the guidance document to include new materials, standards and evaluation methodologies.
19. Explore the feasibility of developing a national methodology for life cycle analysis and life cycle costing for construction projects.
20. Research long term ambitions for GPP for construction, by means of case study projects at design, occupancy and refurbishment stages.

Source: *Green tenders: An Action Plan on Green Public Procurement*, Department of Environment, Community and Local Government & Department of Public Expenditure and Reform (p.62)

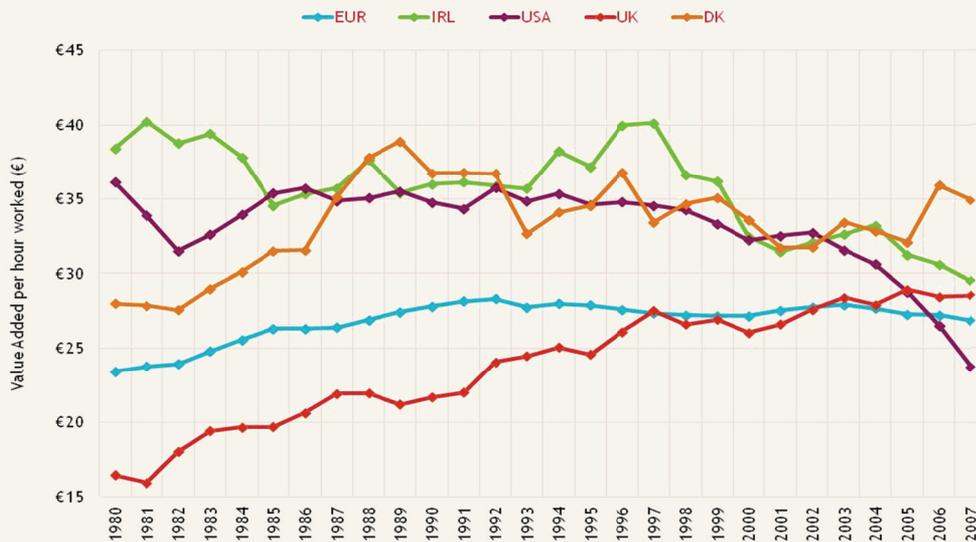
Appendix 8: Productivity trends in Irish construction

Table A8.1 Annual average growth rates in per hour labour productivity, sectors, 2007-2010



Source: Ireland's Productivity Performance, National Competitiveness Council and Forfás, 2012.
 Data Source: CSO, National Accounts, CSO QNHS, EU KLEMS 72-Industry Database, March 2011

Figure A8.2 Output per hour worked in construction, selected economies, 1980-2007



Source: Ireland's Productivity Performance, National Competitiveness Council and Forfás, 2012.
 Data Source: EU KLEMS 72-Industry Database, March 2011

Appendix 9: EU Strategy for the sustainable competitiveness of the construction sector and its enterprises (COM 2012 433)

The European Commission's strategy for the construction sector and its enterprises focuses on five key objectives, namely:

- Stimulating favourable investment conditions;
- Improving human capital basis of the construction sector;
- Improving resource efficiency, environmental performance and business opportunities;
- Strengthening the Internal market for Construction; and,
- Fostering the global competitive position of EU construction enterprises.

A summary of the five objectives are set out below.

Stimulating favourable investment conditions

Building renovation and infrastructure maintenance activities are key activities in the construction sector not only in relation to economic growth and employment at a local level but also in achieving energy saving targets. The Commission advocates that in the short term greater emphasis should be put on encouraging these activities and also in addressing the barriers that they face. In particular, the Commission supports the need to implement and enforce the Energy Performance of Building Directive as well as setting up an information exchange in relation to best practice on fiscal incentives and financial support measures.

The Commission also advocates the role of the Structural and Cohesion Funds in providing support and funding for energy efficiency, renewable energy investments and research and innovation both in the short term under the 2007-2013 programme and long term in the 2014-2020 programme. In addition, the Commission also highlights the role the European Investment Bank, European Energy Efficiency Fund, European Bank for Reconstruction and Development and the Trans European Networks for Transport (Ten-T) fund in generating a favourable investment conditions.

Improving human capital basis of the construction sector

The need to anticipate future skills and qualifications and attract students to these associated professions is a particular challenge for construction enterprises. To this end, the Commission propose to evaluate the BUILD UP Skills (BUSI) initiative, which adapts education and training to the skills needed in terms of energy efficiency and renewable energy sources, and to assess the potential to extend this initiative to other categories of construction.

In the longer term, the Commission also propose to assess the feasibility of a European Sector Skills Council which would exchange information and best practice in order to identify the evolution of skills and jobs in the sector as well as the feasibility of skills alliances between training providers and the industry in order to ensure courses and curricula are up to date. The Commission further outlines the need to strengthen the Posting of Workers Directive to encourage the mobility of workers and ensure that all workers avail of the same standards. The Commission also advocates the need for construction enterprises to look at improving the working conditions of

the sector, particularly in relation to health and safety, to attract new workers and improve the life expectancy of workers.

Improving resource efficiency, environmental performance and business opportunities

The role of the construction sector in promoting sustainable development, particularly in relation to near zero energy buildings and material resource efficiency is also highlighted by the Commission. To this end, the Commission advocates the development of harmonised indicators, codes and methods of assessment of environmental performance, which would be applicable across construction products, processes and works. It also recognises the need to make these various assessment methods more affordable and operational for all stakeholders, including construction enterprises, the insurance industry and investors who would also support the assessment of publically funded schemes.

It is further recognised that the various administrative and legislative procedures at national level can limit the efficient operation of the construction sector. As a result the Commission advocates the exchange of information and best practice across Member States to ensure that processes are streamlined and promote a level playing field.

Strengthening the Internal market for construction

A clear and predictable legal framework and proportionate administrative costs are vital for the functioning of the internal market for construction products and services. As a result, the Commission advocates a review of the regulations and administrative provisions governing the implementation of EU legislation on construction to assess the interaction of EU and national legislation and to assess if clarifications or additional measures are needed. This process will assist in the convergence of different regulatory approaches. Furthermore, the Commission calls for the adoption and adaptation of Eurocodes, a set of design standards and codes of practice applicable to construction materials, structural engineering and structures and products, by EU Member States to further facilitate convergence.

Fostering the global competitive position of EU construction enterprises

The growth in emerging economies outside of the EU will provide significant opportunities for construction enterprises. To this end, the Commission will continue to seek access to these markets for EU construction enterprises. The Commission also advocates continuing to liaise with the European Investment Bank to enhance the scope of EU financial instruments to support transcontinental connections. The provision of technical assistance to small specialised contractors in assessing international markets through initiatives such as Small Business Big World and the European Regional Development Fund is also recommended. The proliferation of EU Eurocodes to non EU countries will also be encouraged as countries seek to update their national standards.

Appendix 10: Forfás Board members

Eoin O'Driscoll (Chairman)

Managing Director, Aderra

Martin Shanahan

Chief Executive, Forfás

Mark Ferguson

Director General, Science Foundation Ireland

John Murphy

Secretary General, Department of Jobs, Enterprise and Innovation

Barry O'Leary

Chief Executive, IDA Ireland

Frank Ryan

Chief Executive Officer, Enterprise Ireland

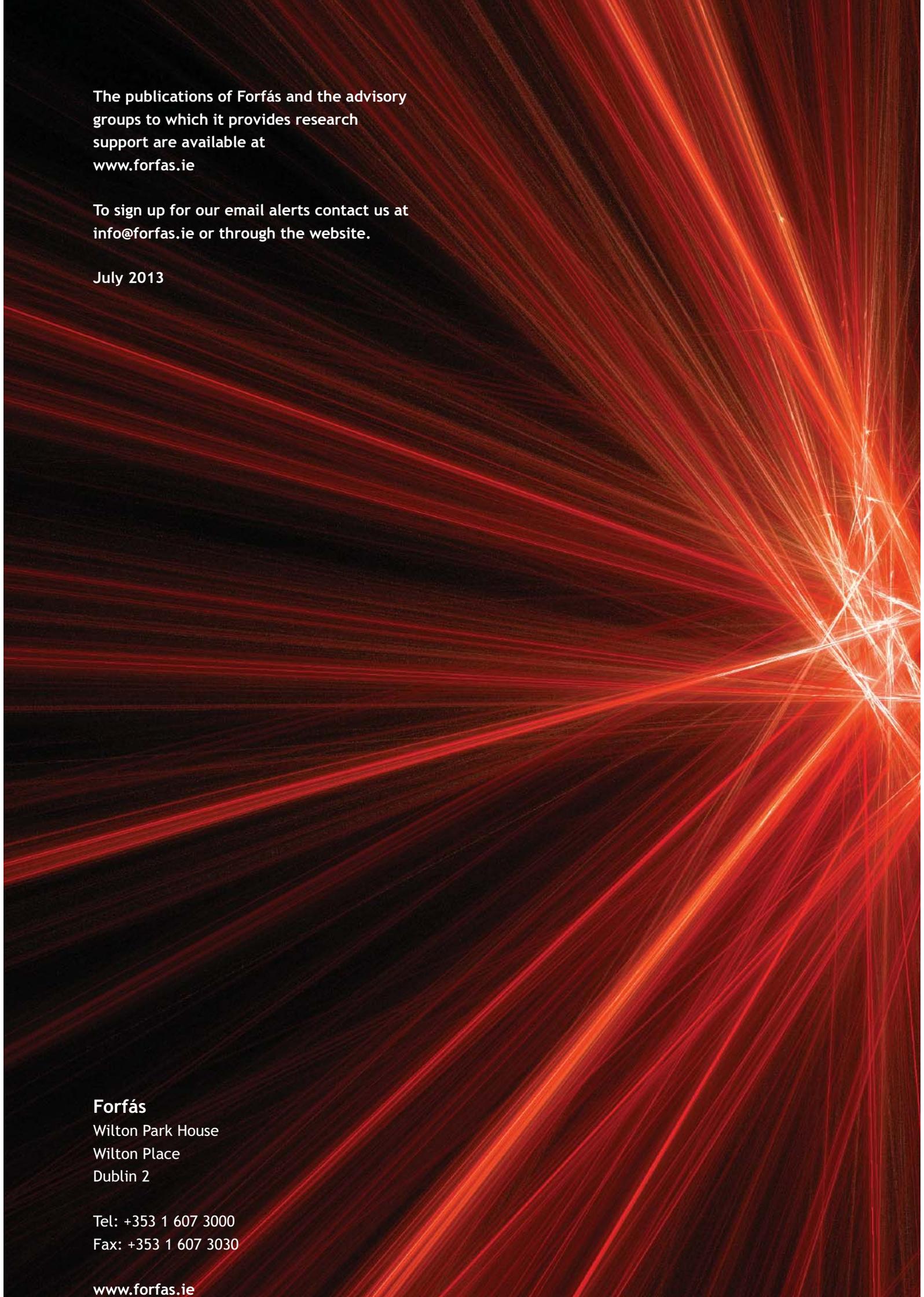
Michael O'Leary

Secretary to the Board, Forfás

Appendix 11: Recent Forfás publications

National Skills Bulletin 2013 EGFSN	July 2013
Monitoring Ireland's Skills Supply: Trends in Education and Training Outputs 2013 EGFSN	July 2013
Annual Business Survey of Economic Impact 2011 Forfás	July 2013
Global Entrepreneurship Monitor 2012 Global Entrepreneurship Monitor	July 2013
Annual Employment Survey Forfás	July 2013
Ireland's Competitiveness Performance 2013 Forfás	May 2013
Making It In Ireland: Manufacturing 2020 Forfás	April 2013
Future Skills Needs of the Manufacturing Sector to 2020 EGFSN	April 2013
Sectoral Regulation Forfás	April 2013
EGFSN Statement of Activity EGFSN	March 2013
Costs of Doing Business in Ireland 2012 Forfás	March 2013
Vacancy Overview 2012 EGFSN	February 2013
Action Plan for Jobs 2013 Forfás, DJEI	February 2013

A Review of the Equity Investment Landscape In Ireland Forfás	January 2013
Regional Labour Markets Bulletin 2012 EGFSN	January 2013
A Review and Audit of Licenses Across Key Sectors of the Irish Economy Forfás	December 2012
Global Entrepreneurship Monitor (GEM) 2011 Global Entrepreneurship Monitor	September 2012
Annual Employment Survey 2011 Forfás	August 2012
National Skills Bulletin 2012 NCC	July 2012
Monitoring Ireland's Skills Supply - Trends in Education and Training Outputs 2012 EGFSN	July 2012
Ireland's Competitiveness Scorecard 2012 NCC	July 2012
Forfás Annual Report 2011 Forfás	July 2012
Key Skills for Enterprise to Trade Internationally EGFSN	June 2010
Sustainability of Research Centres Advisory Science Council	June 2012
The Science Budget 2010-2011 Forfás	June 2012
Annual Business Survey of Economic Impact 2010 Forfás	June 2012
Overview of the Main Infrastructure Issues for Enterprise Forfás	May 2012



The publications of Forfás and the advisory groups to which it provides research support are available at www.forfas.ie

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July 2013

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