



Rialtas na hÉireann
Government of Ireland

Focus on Construction

December 2018

Construction

Growing innovation intensity in Irish firms with a number of successful internationalised Irish owned companies



GLOBAL MARKET SIZE

\$10trn

Revenues in 2016



Growth Forecast

\$15trn

Revenues by 2025

Source: Shaping the Future of Construction, A Breakthrough in Mindset and Technology, World Economic Forum, May 2016

IRISH EXPORTS

€1,396m

in 2016 from agency supported Irish owned firms

Direct Economic Expenditure (DEE)

€2,792m

in 2016

Source: Department of Business, Enterprise and Innovation, Annual Business Survey of Economic Impact; DEE relates to total payroll costs and materials and services sourced from Irish suppliers



Increased focus on sustainability globally

The percentage of firms expecting to have more than 60% of their projects certified as green build anticipated to grow from 18% to 37% within two years.

Source: World Green Building Trends, 2016-World Green Building Council



July 2018 showed a 59th consecutive monthly rise in construction activity

Source: Ulster Bank Construction Purchasing Managers' Index

EMPLOYMENT

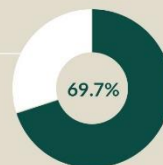
11,154



in 2017 in agency supported firms

Source: Department of Business, Enterprise and Innovation, Annual Employment Survey

Residential is the largest segment of the construction sector in Ireland, accounting for 69.7% of the total value



Source: Marketline Ireland Construction Industry Profile, 2017



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Prepared by the Department of Business, Enterprise and Innovation

The sector in numbers

Global ⁱ	Market Size	Growth Forecast
		\$10trn (revenues) (2016)

Irish Exports

	Exports ⁱⁱ	% of National (Exports)	5-year CAGR (2011-2016)	DEE (2016)
CSO	Goods €148m 2017,	0.12%	9.9%	
	Services €182m 2016	0.13%	-13%	
Agency supported Irish owned Firms ⁱⁱⁱ	€1,396m (2016)	1%	4.4%	€2,792m

Irish Employment

	Employment	% of National Employment	5-year CAGR (2012-2017)
CSO ^{iv}	144,400	6%	10.77%
AES ^v	11,154	0.5%	9.4%

i) Shaping the Future of Construction, A Breakthrough in Mindset and Technology, World Economic Forum, May 2016.

ii) CSO External trade, TSA06, Goods Exports figure includes Prefab buildings; plumbing and electrical fixtures and fittings and CSO External Trade, International Trade in Services includes Architectural, engineering and other technical services, BPA04: Exports and Imports of Services by Geographic Location, Component, Year and Statistic.

iii) no exports recorded for Foreign owned firms

iv) Employment: CSO, Labour Force Survey, Q22018, seasonally adjusted. QLF03: Person aged 15 years and over in Employment by Sex, NACE Rev 2 Economic Sector, Quarter and Statistic (NACE Rev 2 F 41-43)

v) Annual Employment Survey 2017, Agency Clients, Construction (NACE Rev 2 F 41-43)

Description of the sector globally

- The sector contains a range of construction products companies and construction services firms:
 - Construction products companies are involved in developing advanced building materials, off-site construction, timber products, building systems, insulation products, and a range of fittings used in construction and building fit out
 - Construction service firms operate across civil and structural engineering & contracting, mechanical & electrical contracting and power, energy maintenance and generation, quantity surveying and consulting
- The construction sector has a dual economic role – both as a sector in its own right, and as an input to wider socio-economic activity providing the housing and infrastructure required to sustain economic growth and competitiveness and attract FDI.

- It is highly labour intensive with a diverse range of occupations and has a high multiplier effect. The sector is also highly dispersed, providing employment and economic growth in communities across Ireland.

Global developments and implications

- With total annual revenues of almost \$10 trillion and added value of \$3.6 trillion, the construction industry accounts for about 6 per cent of global GDP, in developing countries it tends to account for more than 8 per cent of GDP.
- The industry is expected to grow to estimated revenues of \$15 trillion by 2025. The OECD estimates that at least US\$40 trillion will be needed for infrastructure investment globally in the coming 20 years for urban infrastructure alone. More than 100 million people are employed in construction worldwide.¹
- Within the global construction industry, the residential segment is expected to remain the largest segment.
- The Asia-Pacific region is expected to remain the largest market over the forecast period fuelled by population growth, economic growth and increased urbanisation and affordable housing projects.² It is anticipated that of the 85 per cent market growth forecast worldwide, India, China and the recovering U.S. will account for 57 per cent of that growth.
- Emerging trends include increasing demand for green construction to reduce carbon footprint, building information systems (BIM) for efficient building management, off-site construction and the use of fibre-reinforced polymer composites for the rehabilitation of aging structures.³
- The increased focus on sustainability (green build) is a major challenge and opportunity for the sector. The percentage of firms expecting to have more than 60 per cent of their projects certified as green build is anticipated to double from 18 per cent in 2016 to 37 per cent in 2018.⁴ The challenge will relate to how the sector adapts its products to meet energy performance and efficiency standards/regulations. Opportunities are diverse as innovative 'green' products and materials are constantly being developed.
- Technology is moving to the strategic centre of activities and business models in the sector, due to the need for greater productivity and improved financial outcomes. Consolidation of fragmented platforms, standardisation of processes and attracting digital savvy talent remain challenging, creating barriers to innovation.
- Building Information Modeling (BIM) is at the centre of the industry's digital transformation. BIM is a collaborative process in which all parties involved in a project use three-dimensional design applications, which can include information about assets' scheduling, cost, sustainability, operations and maintenance to ensure information is shared consistently throughout total assets' lifecycles. BIM powers new technologies such as

¹ Shaping the Future of Construction, A Breakthrough in Mindset and Technology, May 2016, WEF

² Growth Opportunities in the Global Construction Industry, December 2017, Research and Markets

³ Growth Opportunities in the Global Construction Industry, December 2017, Research and Markets

⁴ World Green Building Trends, 2016-World Green Building Council

prefabrication, automated equipment and mobile applications for team collaboration. It also enables new services and helps determine which new assets best complement existing built environments.⁵

- Advances in science and technologies are enabling ‘smart’ building development, new materials and processes, and increased use of off-site building processes (pre-built modular units).
- Increasingly, construction product companies are selling service contracts alongside their products. The services being sold include product maintenance, electronic capabilities and data analytics services.

The sector in Ireland

- Construction is an important economic sector and supports employment in all regions. Most direct employment comes from sub-contractors and roles are increasingly specialist. Non-specialist and traditional trades are generally provided by labour agencies and self-employment is relatively high in the sector.
- The sector includes a number of large internationally trading companies (primarily Irish owned and supported by Enterprise Ireland), as well as a large number of SMEs that primarily supply the local market. The sector is fragmented which poses challenges to productivity generally.
- Although it remains a relatively small cohort of the overall number of construction firms, Irish-owned enterprises are increasingly expanding into international markets. A small number of foreign owned global players now manage significant international contracts from Ireland.

In terms of domestic growth of the sector:

- Construction is currently in a period of strong growth, having been severely impacted during the economic downturn. Recovery started during 2013 with output rising to just over €15 billion in 2016 (8 per cent of GNI* in 2016)⁶.
- The Ulster Bank Construction Purchasing Managers’ Index for July 2018 showed a 59th consecutive monthly rise in construction activity.
- Historically, the output of the Irish construction industry peaked in 2007 at over €38 billion⁷ (almost 24 per cent of GNP) and employed over 270,000⁸. Output from the industry fell to its lowest point in 2012, at just over €9 billion - a fall of 76 per cent.
- Growth in the sector is driven by commercial activity and the pick-up in housebuilding in urban areas, particularly Dublin. Residential is the largest segment of the sector in Ireland, accounting for 69.7 per cent of the total value.⁹

⁵ An Action Plan to Accelerate Building Information Modelling (BIM) Adoption, February 2018, WEF

⁶ Modified Gross National Income (GNI*) is a new indicator designed to exclude globalisation effects that disproportionately impact the measurement of the size of the Irish economy in terms of GDP and GNP.

⁷ Review of the Construction Industry 2008 and Outlook 2009–2011, Department of Environment & Housing.

⁸ CSO, Quarterly National Household Survey

⁹ Marketline Ireland Construction Industry Profile, 2017

- Engineering skills are in demand. The number of Civil and Building Engineering graduates have fallen 45 per cent in the past 5 years.¹⁰
- There is also a need for a more blended set of skills across traditional engineering and construction and digital skills. Companies will need to increase in company personnel development and hiring apprentices to meet future skills needs.
- Adoption of technology will be a key aspect to the future productivity growth of the sector - specifically in terms and Building Information Modelling (BIM) and of understanding the impact of IoT (Internet of Things) on the Architectural, Engineering and Construction (AEC) sector, the use of Augmented and Virtual Reality.

Ecosystem

- Project Ireland 2040 (PI 2040, The National Development Plan) commits €116 billion in investment on priority projects over the period to 2027 and the Action Plan for Housing involves the commitment of €5.5 billion to 2021 which provides a major stimulus to the sector.
- A number of new implementation structures have been established to ensure timely delivery and value for money of PI 2040. These include the establishment of a new Project Ireland Delivery Board to oversee implementation of the plan, a new Investment Projects and Programmes Office within DPER, and the Construction Sector Group to bring together Government and key industry segments.
- At least 15 Higher Education Institutes now offer BIM related courses.
- There is growing R&D capacity in the areas of 'smart' building and green construction within HEIs and increased investment in building RD&I capability including:
 - the TCD Trinity Haus innovation centre,
 - Tyndall
 - AMBER - Advanced Materials and Bio-engineering Research
 - I-Form - focusing on Additive Manufacturing and 3D Printing;
 - CONFIRM - Smart Manufacturing Centre focused on the convergence of IT systems and industrial automation systems;
 - Irish Manufacturing Research (IMR) - Advanced Manufacturing Technologies
 - CONNECT Centre for Future Networks and Communications
 - Insight Centre for Data Analytics
- CiTA is a not for profit organisation comprising Institutes of Technology and enterprises aimed at actively encourage the Irish Construction sector to take full advantage of current and emerging Information and Communications Technologies. CiTA was established as a research project in DIT Bolton St. in association with Waterford IT in May 2001, CiTA was formally incorporated into a company limited by guarantee with no

¹⁰ Engineers Ireland, Engineering 2018: A barometer of the profession in Ireland

share capital in November 2005. Membership of CitA is open to all stakeholders in the Irish construction industry (Architecture-Engineering-Construction-Operations – AECO).

- As a major client of the construction sector, the Public Sector may have a role in influencing business behaviours and relationships through the procurement process.
- There are currently traineeships available for Overhead Lines Operator and in Interior Systems. From 2019 there will be apprenticeships available in Scaffolding and for Senior Quantity Surveyor

Relevant Reports

Click on hyperlinks below

- [Roadmap to Digital Transition, National BIM Council](#)
- [World Economic Forum, Shaping the Future of Construction](#)
- [Project Ireland 2040](#)
- [Demand for Skills in Construction to 2020, CIF](#)

Key actors

Government: Department of Business Enterprise and Innovation (DBEI), Department of Finance (DoF), Department of Public Expenditure and Reform (DPER), Department of Communications, Climate Action and Environment (DCCAIE).

Agencies: Enterprise Ireland, National Standards Authority of Ireland

Industry Groups: Construction Industry Federation, Engineers Ireland, National BIM Council, IBEC

Recent Developments

Company Developments

Investments by business in Ireland provide considerable opportunities for Ireland's construction sector and job creation during the construction phase.

- WuXi Biologics will build the world's largest facility using single-use bioreactors in Dundalk and will support 700 jobs during construction phase (April 2018)
- MSD is to develop a new biotechnology facility in Dublin, with the expected creation of up to 350 new jobs (February 2018)
- Janssen Sciences Ireland UC announced an expansion of its Ringaskiddy, Co. Cork facility. The expansion involves an investment of more than €300 million that will increase the existing manufacturing space by an

additional 19,100^m², provide employment for up to 450 people during construction and an extra 200 people once completed (October 2017)

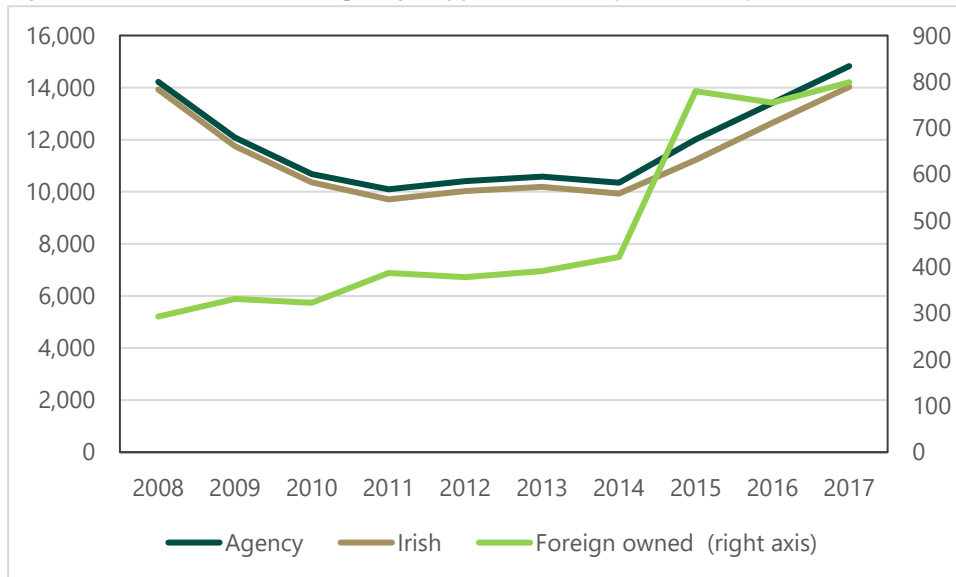
- The construction of €233 million development started at Center Parcs Longford Forest, Ballymahon, County Longford. The development on a 400-acre site will create approximately 750 jobs during the construction phase, and is due to open in the summer of 2019. Center Parcs estimates that, when operational, the new holiday village will add approximately €32 million to Ireland's GDP per annum (September 2017)
- Takeda Pharmaceutical Company Limited announced investment in a new production facility at the existing Grange Castle site in Ireland. The investment of over €40 million will create approximately 40 new jobs over the next two years from June 2017. The construction will be managed by Project Management Group, providing employment for the construction sector
- A €241m development plan has been announced for University College Cork that will create an estimated 500 construction jobs and involves a €100m loan agreement with the European Investment Bank (November 2016)
- PM Group has announced 250 new graduate positions over the next five years. The roles will be across all engineering disciplines, as well as architecture, environmental, construction and project management (October 2016)
- GE Healthcare, the biopharma company, has announced plans to construct four new factories in Ringaskiddy creating 500 jobs by late 2018 (September 2016)
- A €500 million investment programme with the potential for more than 5,000 jobs has been unveiled in Limerick. Limerick Twenty Thirty Strategic Development DAC is the biggest single commercial property development programme undertaken outside of Dublin (September 2016)

Sector Developments

- Project Ireland 2040 signals Government's strong commitment to Government €91 billion of exchequer funds for capital expenditure over the next decade. Commitments include a focus on social housing (€11.6 billion), €2 billion on urban renewal and regeneration, over €11 billion on national and regional roads as well as capital investments in Higher education institutes, education and health. Overall the capital expenditure programme equates to 4 per cent of GNI* during the period 2022- 2027 on average.

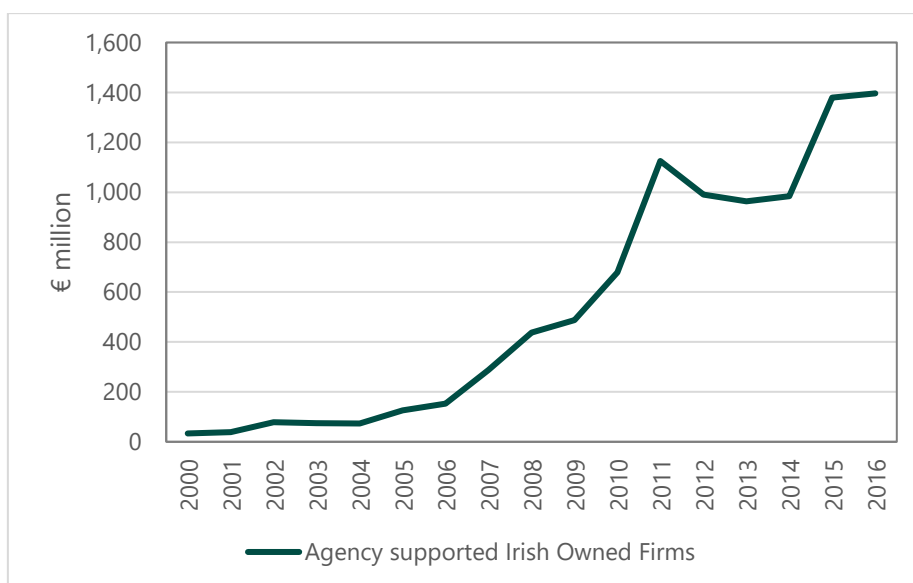
Data Trends

Employment in Construction in Agency supported firms (2008-2017)



Construction employment decreased sharply following the burst of the property bubble. However, the sector has started to show signs of recovery. Source: Annual Employment Survey 2017

Exports of Construction Products and Services (2000-2016) (€m), Agency supported firms



Construction exports from Agency supported firms in Ireland have increased steadily since the mid 2000's, particularly post the recession in 2007 as a result of Enterprise Ireland support to Construction Sector. Source: ABSEI 2016, DBEI.