



Ireland Handbook 2021

Construction trends
and insights

October 2021

linesight.com



Harcourt Square, Dublin
Architect:
Henry J Lyons
Linesight services:
Cost Management





Welcome to the Linesight Ireland Handbook 2021

Biannually, we gather the key indices and trends in construction in Ireland, giving you the most comprehensive overview of the industry.

For the complete global view, visit the Linesight Knowledge Centre:
linesight.com/knowledge-center

Contents

Ireland Handbook

Irish Market Review and Outlook	9
---------------------------------	---

01 Macro Indicators

1.1. Value of construction output	19
1.2. Construction output	19
1.3. Gross National Product (GNP)	19
1.4. Public capital programme	21
1.5. Public capital investment allocation	21
1.6. Change in public capital allocations	22
1.7. Employment in construction	24
1.8. PPP programme	25

02 Construction Costs

2. Linesight average Irish construction costs 2021	27
--	----

03 Indices

3.1. Linesight tender and cost indices	30
3.2. Linesight tender price index	33
3.3. Linesight construction cost index	33
3.4. SCSI tender price index	34
3.5. Wholesale price index building materials	36
3.6. Consumer vs. construction price inflation	36
3.7. Construction Purchasing Managers' Index	37

04 Contractors

4.1. Irish main contractors' turnover	39
4.2. Irish services subcontractors' turnover	40

05 Wage Rates and Charges

5.1. Basic hourly wage rates	42
5.2. Basic hourly wage rates – mechanical	43
5.3. Basic hourly wage rates – electrical	43
5.4. Planning charges	44
5.5. Fire certificate charges	44

06 Housing

6.1. Annual housing completions	46
6.2. New housing completions by type	47
6.3. Residential property price index	49
6.4. SCSl house rebuilding costs	50

Global Insights

Large-scale residential – addressing the shortcomings of the SHD process	54
The current industry challenges surrounding Professional Indemnity Insurance (PII)	58
The race to build gigafactories	62
How the life sciences sector is collaborating to secure cost and schedule intelligence	66
Examining key cost factors for senior living developments	72
Roadmap to achieving a 'single source of truth' for projects	78
The trends behind a booming data centre sector	83
Brexit - what is the market sentiment?	89

About Us

What we do	94
Our values	97
Our culture	99
Working with you, wherever you are	103
Acknowledgements	106



WuXi Biologics, Louth
Engineer:
IPS
Linesight services:
Project Controls

Review and Outlook

Ireland Market Review

Industry snapshot

€25.5bn
construction output
projected value in 2021



Housing completions

35%

below required
annual level



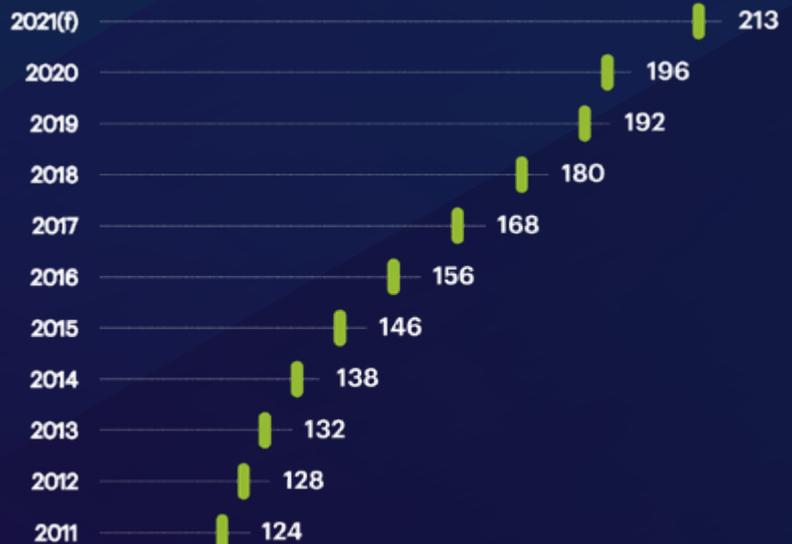
127,300

employed in construction

Q2 2021

↓1.3%
Y-o-Y

2011-2021(f) Linesight
average tender price
index: **124** → **213**



Note: Linesight is forecasting a 6-7% rise in tender inflation for large-scale projects, where smaller projects will be higher

Irish Market Review and Outlook



As restrictions ease and a semblance of normality looms, industry attentions have firmly turned to the significant supply chain constraints and material cost escalation that have been seen both globally and locally in 2021. Linesight Director, Stephen Ashe, discusses the 2021 performance to date and the impact of the above, and other key issues, as well as providing an outlook for the foreseeable future.

The Irish economy grew at **3** times the EU-27 average in Q2, recording a **6.3%** expansion on Q1, compared to **2.1%** across the block.

Economic overview

While the domestic economy and labour market are both benefitting from the significant easing of restrictions since our market review earlier this year, the impact of the pandemic and Brexit continue to be felt.

The latest figures from Eurostat indicate that the Irish economy grew at three times the average amongst the EU-27 in Q2, recording a 6.3% expansion on Q1 compared to 2.1% across the block, with double-digit growth anticipated for the full 2021 year. The Q2 figure was up 21.1% on Q2 2020. While last year's growth was supported by multinational activity (pharmaceuticals, computer and business services exports) and that has continued this year, as the economy has reopened, domestic demand has further driven this growth.

Looking at the Exchequer, there has been some controversy in recent times, following the release of the Government's Summer Economic Statement (SES). However, the government announced earlier this month that the budget deficit this year is forecast to come in at at €13.165 billion, compared to the previous target of €20.285 billion. Following a peak of 31.5% in the COVID-adjusted

155 Townsend Street, Dublin

Architect:
Smith + Kennedy Architects

Linesight services:
Cost Management



unemployment rate in April 2020, the easing of restrictions over the course of this year has seen this rate fall to 10% in September 2021, following a brief spike again to 27% in January 2021 as tight restrictions were reintroduced in Ireland.

Just last week, the Cabinet confirmed that Ireland would raise its corporate tax rate from 12.5% to 15%, in response to pressure from the European Union and the US, and tax developments internationally. The OECD has announced a revised framework agreement on global corporate tax reform, with 140 countries signing on, with the objective of modernising tax rules and limiting what it deems 'aggressive tax planning' by some multinationals.

Construction

COVID containment measures made for a challenging start to the year for construction, with the industry grinding to an enforced halt again following the 2020 shutdown. A 25.9% year-on-year contraction was posted in Q1, but as restrictions lifted in Q2, a rebound was seen, with 22.9% growth recorded. This is also indicated by the Ulster Bank Purchasing Managers' Index, with May to July denoting the second strongest three-month period in the 21-year history of the survey, and while the rate of expansion is moderating, it follows a remarkable pace upon the easing of restrictions, as

pent-up demand was realized. September recorded a 56.3 reading, down from 57.5 in August (with above 50 indicating industry growth).

In terms of building and construction output in 2021 to date, the most recent CSO figures indicate a 7.7% quarterly increase in volume in Q2, and a 26.3% rise on a year-on-year basis. The seasonally adjusted volume index indicates that residential was the strongest quarterly performer with a rise of 52.6%, while civil engineering posted growth of 30.6% and non-residential sector increased by 2.2%. Looking at the year-on-year performances, civil engineering recorded the highest volume increase at 85%, while residential grew by 43.6% and non-residential 19.1%.

In terms of the value index, a 20.8% increase was recorded in Q2 on a quarterly basis and 34.3% on a year-on-year basis. It should be noted when reviewing the above figures that the Capital Goods Price index has seen increases in recent months, and this will have a bearing.

Modified investment is expected to grow by 2.5% this year, accelerating to 6.8% in 2022, with the CIF anticipating a 1% increase in modified investment in building and construction this year, rising to approximately 5% in 2022 and 6% in 2023. Non-residential investment saw a record-high in 2019, shrinking by 9.5% in 2020, but is expected to grow by 3% in 2021 and 5% in 2022.



Government budget deficit by 2025(f)

€7.4bn



Expected industry output value for 2021

↑ 3% Y-o-Y

As referenced in our March 2021 release, the indicators point to delayed activity as a result of the industry shutdowns, as opposed to weakened demand.

Supply chain disruption and material cost escalation remains a core challenge for the industry, with unprecedented lead times and shortages as a result of both the pandemic and Brexit. We discuss this issue in more detail in a dedicated section below.

Another key issue for the industry is the labour shortage, with a bottleneck of demand on the employer side, but 12,000 construction workers remain on the Pandemic Unemployment Payment as of the end of August. With the government's Housing for All plan laying out ambitious targets for the residential sector in particular, they expect demand for 55,000 construction workers to be created, so it is evident that addressing the skills shortage needs to be a fundamental industry objective.

Sector review

Sectors deemed non-essential, such as private housing and commercial property were severely impacted by the industry shutdown, together with the sectors that rely on tourism and trade, such as hotels and retail. Other key sectors, such as data centres, life sciences, high-tech and logistics,

continued to accelerate at pace, with demand booming in these sectors.

Residential

The Banking and Payments Federation Ireland (BPMFI) is forecasting 22,000 completions in 2021, and 27,000 in 2022. Robust demand will remain, as indicated by the €1.2 billion of first-time buyer mortgages granted in August – the highest level seen since the BPMFI began tracking this indicator in 2014. As the abovementioned completion levels are still well below the 35,000 new homes needed a year, further pressure on prices is anticipated.

The recently announced Housing for All plan has been heralded as the “largest State building programme in our history”, promising over 300,000 new homes between 2022 to 2030, comprised of 90,000 social homes, 36,000 affordable homes, 18,000 cost rental homes and 156,000 private homes. With 213 actions laid out to deliver this housing to the market, the plan has received some criticism since its release, due to the funding only being guaranteed for five years, and the plan itself spanning nine years.

Large backlogs amongst the utility companies at present, mainly Irish Water and ESB, are impacting delivery times, given that buildings cannot be commissioned until they have power and water. These legacy issues with utility companies



Projected residential completions in 2021

22,000 units



Commercial real estate investment in 2021

€4bn

**National Maternity Hospital,
Dublin**

Architect:
O'Connell Mahon and
Isherwood + Ellis Architects

Linesight services:
Cost Management



struggling to meet current demand have been highlighted to the government by the CIF, as investment in Irish Water and ESB will be required in order to meet increased demand.

New planning legislation was introduced in May to curb the amount of new houses that can be purchased by institutional investors. This will, in theory, enable more owner occupiers to inhabit new build homes, although it remains to be seen what impact that this will have on the output of new dwellings completed.

Hospitality and retail

Hospitality and retail are experiencing revivals, following the huge blow dealt to these sectors in 2020. Hotels have seen a welcome increase in transactional activity, with approximately €200 million in sales estimated to date in 2021. HotStats's most recent release for July 2021 puts Dublin hotel occupancy rates year-to-date at 44.5%.

Retail is benefitting from strengthening sentiment, as indicated by rises in the Consumer Pulse and Retail Pulse, under the Bank of Ireland's Economic Pulse, albeit from a low base. Retail sales increased by 3.3% month-on-month in June on a seasonally adjusted basis, and were up 10.6% year-on-year. However, the trend towards e-commerce over bricks and mortar retail remains, which is leading to demand in the logistics sector for warehousing space. Overall, while consumers have yet to return to pre-pandemic shopping behaviours, there has been a welcome increase in footfall, consumer confidence and retail sales expenditure. As a result, there has been some resurgence in the appetite for development in this sector in recent months.

Commercial

Although the first half of 2021 was muted with regards to activity in the commercial sector, the return to offices is having a positive impact for the second half of the year. Early indications are that there will be a prevalence in the hybrid working model for a lot of organisations. Demand for more flexible office spaces is being seen, as employers adopt this model, and overall demand for quality

space remains considerable, as vacancy rates continue to decline.

The return to office trend will accelerate going into Q4 2021. €3.5 billion has been invested in Irish commercial real estate so far in 2021 and the market is on target to achieve in excess of €4 billion for the year. This represents the highest volume on record for this period, and doubles the volumes seen for the first three quarters of 2020.

Healthcare

Healthcare was one of the sectors that witnessed limited lockdown. It is a sector that continues to perform well in both public and private investment, with growing demand emerging for development in the sector in recent months.

Industrial and logistics

Industrial and logistics continues to go from strength and strength, and is expected to record a strong performance in 2021 as the expedited shift towards e-commerce and Brexit boosts demand. Prime yields and rents are being seen in this sector. As of the end of August, the industrial and logistics sector is on course to have its strongest year on record in 2021. The creation of a new Amazon logistics hub in Baldonnell Business Park is also expected to create employment for up to 500 people in the sector.

Data centres

A report earlier this year by Host in Ireland estimated that the construction spend on new data centres in Ireland will amount to €1.5 billion in 2021. In total, the pipeline of new data centres will amount to circa. €6.7 billion (construction value) between 2021 and 2025. In the last year, the number of operational data centres in Ireland has increased by 25% to hit 70.

Owners and operators are investing significantly in renewable energy sources and their further implementation to curtail the impact of energy usage from this sector on the grid.

The government is rumoured to be classifying

data centres as strategic developments given the level of foreign direct investment that they attract, which will fast track the planning and judicial review process.

Life sciences

Life sciences is an important sector for Ireland, exporting more than €45 billion per year and employing over 50,000 people directly. In its National Development Plan - Project Ireland 2040, which outlines capital investment of almost €116 billion, the government has committed €9.4 billion towards research to support Ireland's reputation as a growing R&D hub.

The recent announcement from AstraZeneca about their planned investment in Dublin's College Park further strengthens the number of top global pharmaceutical companies who are investing or have recently invested in Ireland, confirming the importance of the sector to the country. In the specialist area of medical devices alone, Ireland has a presence from eight of the world's ten largest companies.

Plans to attract further investment is supported by both the IDA and NIBRT, with the creation of a new training facility for the Cell and Gene Technology (CGT) area of the sector, to support the development of the local workforce required to staff further new manufacturing facilities.

Challenges and opportunities

Material cost escalation and supply chain disruption

Material cost escalation and the extensive supply chain disruptions perpetuated by the perfect storm of Brexit and COVID-19 have been particularly topical this year, with huge spikes seen in the majority of materials in H1, and this remains a key challenge for the industry.

Steel demand is met primarily by importing stocks, and a jump in the raw material price was seen during 2020 and 2021. While prices rose in H1 2021, and spiked in July, the outlook is for costs to reduce by between 1-5% in 2022 as the market moderates.

On a global basis, lumber has been one of the materials most affected by the commodity market volatility, with the U.S. impacted in particular, as a result of supply shortages domestically and from Canada. This has had a knock-on effect around the world, with rough wood recording a sizeable hike in price in H1 2021. We anticipate that the Q4 figure will see a further increase, and although it should stabilise in 2022, it is likely to remain at this high level.

Ireland is dependent on imports with regards



Life sciences capital investment committed by the government

€9.4bn



2021 construction spend on new data centres in Ireland

€1.5bn

Project Royal, Dublin

Architect:
Henry J Lyons

Linesight services:
Cost Management, Project
Management, PSDP



to copper, and an international increase in price impacted Ireland during 2020. Following incremental increases in H1 2021, costs peaked in Q3 and we anticipate that they will moderate slightly as global demand softens.

Planning

Planning remains an acute industry challenge. The controversial SHD (Strategic Housing Development) process is coming to an end, with a marked decline in planning permissions this year, despite pent-up demand, and of the 49 SHD projects granted permission in 2021, 23 of these have stalled due to judicial reviews. It is due to be superseded by the General Scheme of the Planning and Development (Amendment) (LSRD) Bill 2021, which will re-introduce local authorities into fast-track applications, in an effort to address one of the fundamental shortcomings of the SHD process, with a 'two-step' consenting process ending the judicial review being the only route to appeal.

A man with short brown hair, wearing a blue blazer over a light blue shirt, is smiling and looking towards the right. He appears to be in a professional setting, possibly an office or a meeting. The background is slightly blurred, showing what looks like a window or a modern interior design.

“

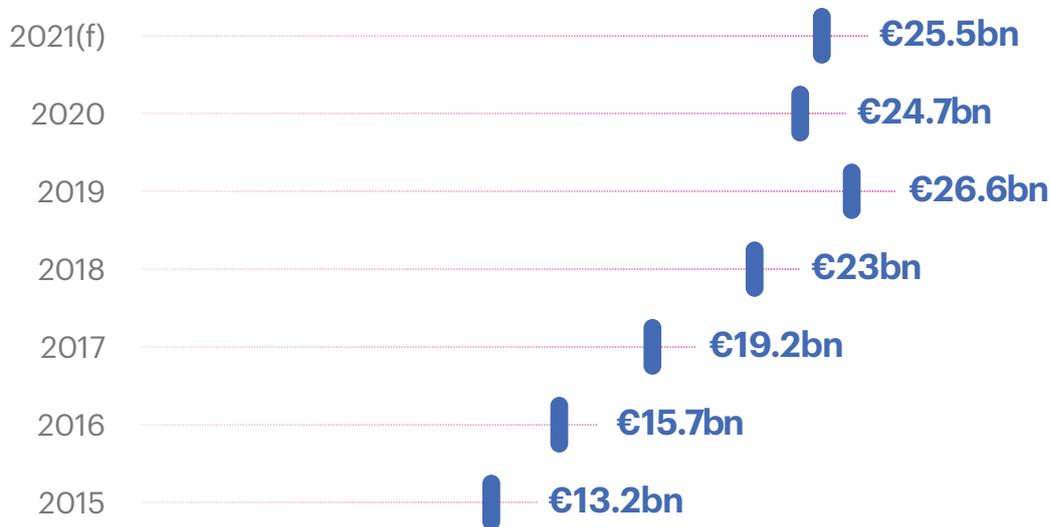
There are offices all over the world, which opens up the option to travel and work in exciting places. I took up the opportunity to work with Linesight in Dubai for a couple of years before returning to Dublin in 2016, so the encouragement of mobility and gaining international experience is fantastic.

Darragh O'Shea, Associate - Cost Management

”

1 Macro indicators

1.1 Value of construction output 2015-2021(f)



Note: Output for 2015 - 2020 from CSO Gross Domestic Physical Capital Formation at current market prices.

Source: CSO/Linesight

1.2 Construction output 2015-2021(f)

	2015	2016	2017	2018	2019	2020	2021(f)
Value of output at current prices (€m)	13,265	15,782	19,231	23,013	26,603	24,700	25,500
Change in value of output (%)	13%	19%	22%	20%	16%	-7%	3%
Construction output as % of GNP	7%	7%	8%	9%	9%	9%	-

Source: CSO/Linesight

1.3 Gross National Product (GNP) 2015-2020

	2015	2016	2017	2018	2019	2020
GNP at current prices (€m)	200,810	219,728	238,135	256,322	274,143	276,483
% change in GNP	22.64%	9.42%	8.38%	7.64%	6.95%	1.00%

Source: CSO/ESRI



A6 Randalstown to
Castledawson, Northern
Ireland

Architect:
AECOM

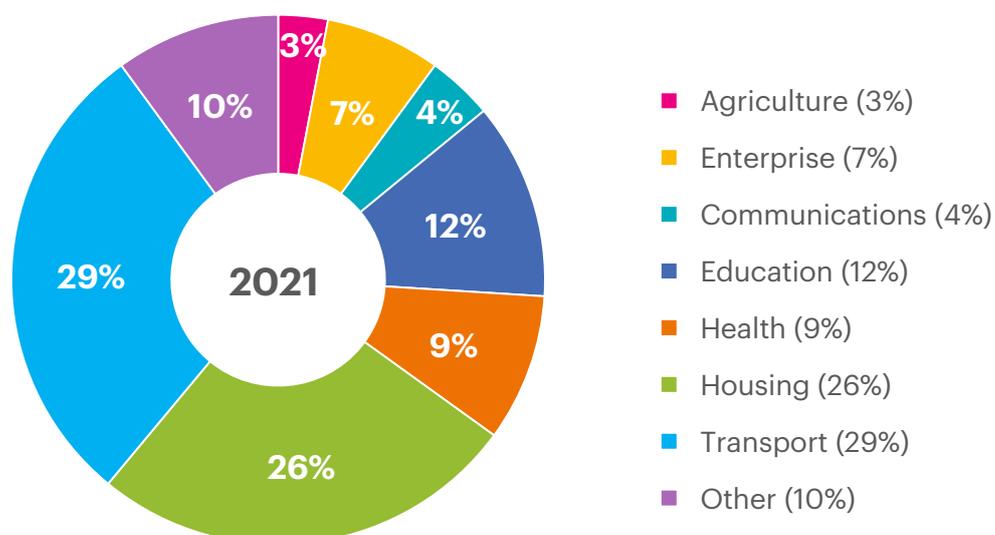
Linesight services:
Cost Management,
Procurement

1.4 Public capital programme 2019-2022

	2019 €m	2020 €m	2021 €m	2022 €m
Agriculture, Food and Marine	255	258	265	275
Business, Enterprise and Innovation	620	630	640	715
Children and Youth Affairs	32	31	32	33
Communications, Climate Action and Environment	256	297	317	400
Culture, Heritage and the Gaeltacht	75	76	80	110
Defence	106	113	120	125
Education and Skills	941	942	1,006	1,100
Employment Affairs and Social Protection	14	15	16	17
Finance	25	22	18	19
Foreign Affairs and Trade	17	13	13	14
Health	667	724	780	825
Housing, Planning and Local Government	2,033	2,079	2,209	2,280
Justice	241	230	208	216
Public Expenditure and Reform	203	214	223	232
Rural and Community Development	141	150	152	175
Transport, Tourism and Sport	1,643	2,058	2,526	2,405
Gross Capital Expenditure	7,269	7,852	8,605	8,941

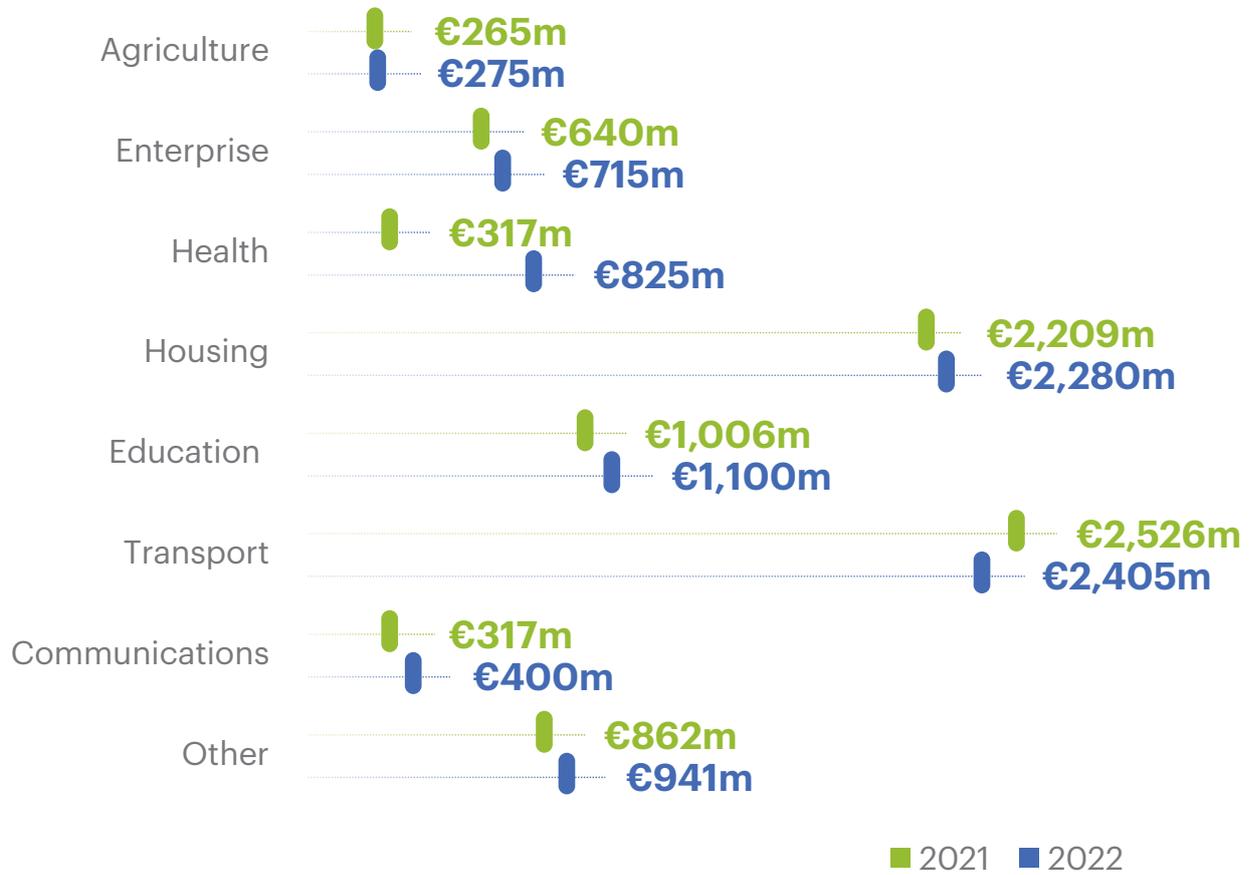
Source: Project Ireland 2040 | National Development Plan 2018-2027

1.5 Public capital investment allocation 2021



Source: Project Ireland 2040 | National Development Plan 2018-2027

1.6 Change in public capital allocations 2021 vs. 2022



Source: Project Ireland 2040 | National Development Plan 2018-2027

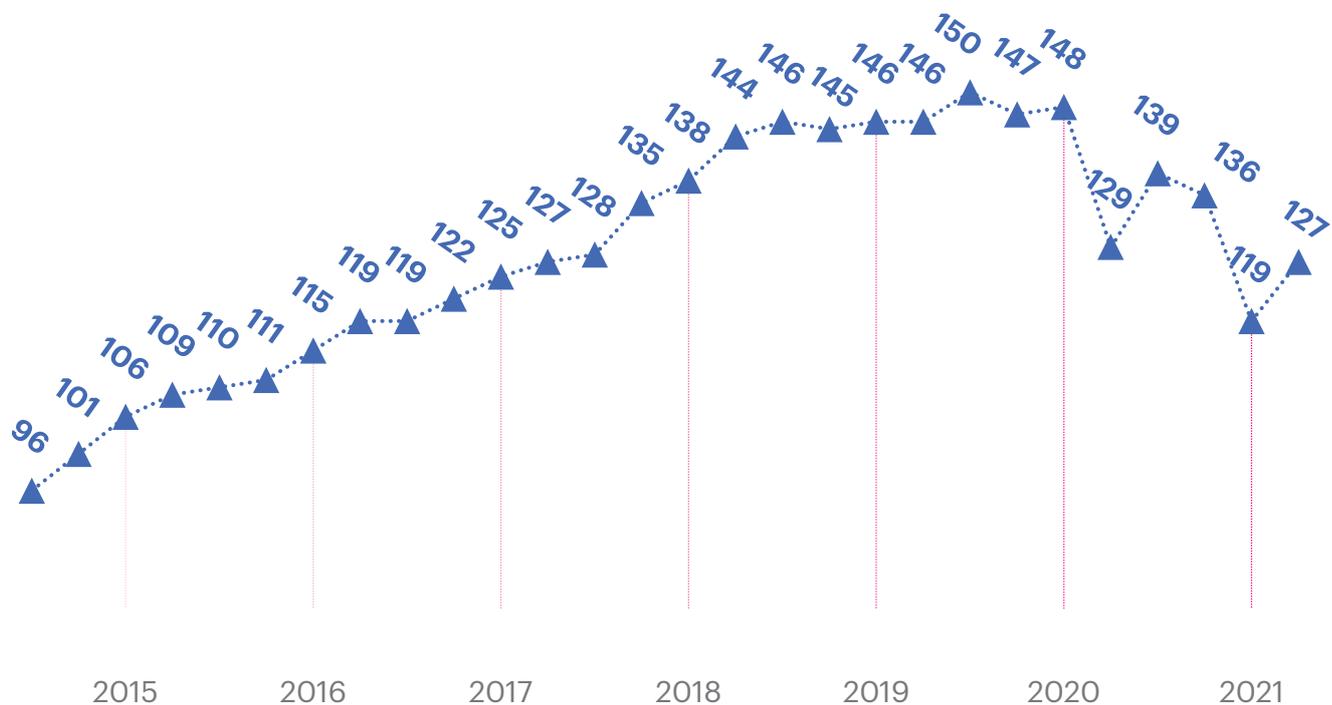


Carton House Hotel, Kildare

Architect:
McCaughey Daye O'Connell

Linesight services:
Cost Management

1.7 Employment in construction 2014-2021 (in thousands)



Note: The above figures are in thousands

Source: CSO

1.8 PPP programme and social housing land initiatives

PPP programme



PPP programme	Capital value	Details	Status
Education	c.€150m	Higher Education PPP - Bundle 1 - across 6 locations, including Athlone IT, Munster TU (Cork), Dun Laoghaire Institute of Art and Design Technology, TU Dublin (Blanchardstown), TU Dublin (Tallaght) and Munster TU (Tralee)	In procurement
Education	c. €140m	Higher Education PPP - Bundle 2 - across 5 locations, including Waterford IT, Limerick IT, Letterkenny IT, Galway-Mayo IT and Carlow IT	OJEU
Social Housing	c.€100m	Bundle 3: Currently being finalised	Pre-procurement
Healthcare	c.€150m	Community Nursing Units: Development of a single bundle of 7 sites (Athlone, Ardee, Clonmel, Cork city, Killarney, Midleton and Thomastown) catering for c. 530 beds.	PT Appointed
Justice	c.€150m	Community nursing units: development of a single bundle of up to 11 sites	Pre-procurement

PPP and concession projects closed

13 major inter-urban motorways/bypasses

9 education PPPs, including 35 schools delivered under 1 pilot scheme and 5 subsequent schemes, DIT Campus at Grangegorman, Maritime College and Cork School of Music

International Convention Centre

Criminal courts complex

Regional courthouses: 7 locations (Cork, Drogheda, Letterkenny, Limerick, Mullingar, Wexford and Waterford)

Primary care centres: 14 sites nationwide

Service areas Tranche 1 and service areas Tranche 2: Athlone, Kilcullen and Gorey

Dublin waste to energy

Property PPP (land swap): Charlemont Street

Social housing: 2 bundles across 14 sites nationwide

Source: National Development Finance Agency, Department of Public Expenditure and Reform



Player Wills, Bailey Gibson,
Dublin

Architect:
Henry J Lyons

Linesight services:
Cost Management

2 Linesight average Irish construction costs 2021

The average construction costs table is generated using Linesight's database and sets out typical building construction costs. Our database is the largest construction cost database in Ireland.

Building type	Cost range 2021			M&E (inc. @)
Commercial offices				
Suburban, naturally ventilated				
Shell and core	€1,700	€2,363	per sq.m.	10-15%
Developer standard	€1,957	€2,625	per sq.m.	15-20%
Extra for air conditioning	€258	€525	per sq.m.	-
City centre, air conditioned				
Shell and core	€2,266	€3,360	per sq.m.	15-20%
Developer standard (CAT A)	€2,678	€3,885	per sq.m.	25-30%
Office fit-out				
95% open-plan, no catering	€670	€998	per sq.m.	20-30%
75% open-plan, limited catering	€876	€1,260	per sq.m.	20-30%
60% open-plan, full catering	€1,236	€1,890	per sq.m.	25-35%
Corporate HQ	€1,957	€2,520	per sq.m.	25-35%
High-tech industrial				
Shell and core	€1,442	€1,995	per sq.m.	20-25%
Fit-out	€1,030	€1,943	per sq.m.	25-45%
Residential				
Estate house (approx. 100sq.m.)	€1,391	€1,890	per sq.m.	10-20%
Purpose-built student accommodation (incl. FF&E)	€2,781	€3,360	per sq.m.	10-20%
Apartments - suburban/city edge				
BTR - 4-8 storey (incl. FF&E)	€2,163	€2,625	per sq.m.	15-20%
BTS - 4-8 storey	€1,957	€2,415	per sq.m.	15-20%
Apartments - urban				
BTR - 5-8 storey (incl. FF&E)	€2,318	€2,888	per sq.m.	20-25%
BTR - 12-15 storey (incl. FF&E)	€2,524	€3,203	per sq.m.	20-25%
BTS - 5-8 storey	€2,215	€2,783	per sq.m.	15-20%
BTS - 12-15 storey	€2,421	€3,098	per sq.m.	20-25%
Co-living	€2,678	€3,360	per sq.m.	20-25%
Shopping centres				
Anchor unit	€979	€1,260	per sq.m.	10-15%
Unit shops	€1,236	€1,943	per sq.m.	10-15%
Mall	€2,215	€4,043	per sq.m.	20-25%
Retail fit-out	€1,751	€2,520	per sq.m.	25-30%
Site development business parks				
Roads and primary services	€231,750	€756,000	per hectare	-
Warehouses				
Without offices	€824	€1,103	per sq.m.	8-12%
With 10% offices	€979	€1,575	per sq.m.	10-15%

Building type	Cost range 2021			M&E (inc. @)
Healthcare				
Tertiary care	€5,047	€6,090	per sq.m.	35-40%
Acute teaching hospital	€4,326	€5,250	per sq.m.	35-40%
General hospital	€3,966	€4,830	per sq.m.	30-35%
Nursing home	€2,472	€3,465	per sq.m.	20-25%
Car park				
Surface	€1,545	€1,995	per space	-
Multistorey	€13,390	€26,985	per space	-
Undercroft	€16,583	€24,150	per space	-
Single-level basement	€22,660	€45,150	per space	-
Double-level basement	€28,840	€60,900	per space	-
Basement (no car parking)				
Bicycle storage general	€1,339	€2,520	per sq.m.	-
Shower and changing facilities	€1,803	€3,255	per sq.m.	-
Plant space (excl. plant)	€1,236	€2,415	per sq.m.	-
Education				
Primary-level (DoES)	-	€1,490*	per sq.m.	10-15%
Second-level (DoES)	-	€1,490*	per sq.m.	15-20%
Third-level	€2,472	€3,675	per sq.m.	20-25%
Leisure				
Hotel building 3-4* (incl. FF&E)	€2,472	€3,465	per sq.m.	25-35%
Hotel building 5* (incl. FF&E)	€3,090	€5,408	per sq.m.	30-40%
Aparthotels	€2,833	€3,990	per sq.m.	25-35%
Restaurant	€2,369	€3,728	per sq.m.	25-30%
Cinema	€1,906	€3,203	per sq.m.	20-30%
Sports hall	€1,339	€2,100	per sq.m.	10-15%
Swimming pool	€3,039	€4,305	per sq.m.	30-40%
Data centre				
Data centre facility	€7.2 million	€9.98 million	per MW	65-80%
Municipal				
Fire station	€2,781	€3,465	per sq.m.	15-25%
Prison	€2,884	€3,833	per sq.m.	20-30%
Courthouse	€3,811	€4,883	per sq.m.	20-30%

Notes:

- The above costs are correct as of the beginning of October 2021, are based on September 2021 prices and on gross floor area. Average costs as indicated should not be used for insurance valuation purposes. The costs are representative of typical valuations for each type of project. Unique designs or challenging sites may not be within the cost range shown. The rates shown are average construction build only and do not include VAT, professional fees, any other soft costs, or allow for future inflation.
 - The building costs noted above for the various building types are exclusive of site development costs and external works, which can vary significantly based on the specific site.
 - The costs associated with brownfield sites can vary significantly and the building costs above exclude abnormal contamination.
 - The basic building costs above exclude basement construction costs. Should a basement be required, this should be costed separately.
 - Costs per car parking space assume a large, efficient car park layout providing a gross 28-34sq.m. per car parking space. Note that this relates to pure car parking areas, and additional basement spaces such as bicycle parking, plant rooms, shower and changing facilities are not accounted for, and should be costed separately.
 - Data centre costs exclude power substations and overhead line work, as well as the cost of bringing fibre connectivity to the site
- * Current basic building cost (BBC) limit includes VAT, but excludes external works, fitted furniture and abnormal cost provisions.



Esprit Mooretown, Dublin

Architect:
Smith + Kennedy Architects

Linesight services:
Cost Management



3 Indices

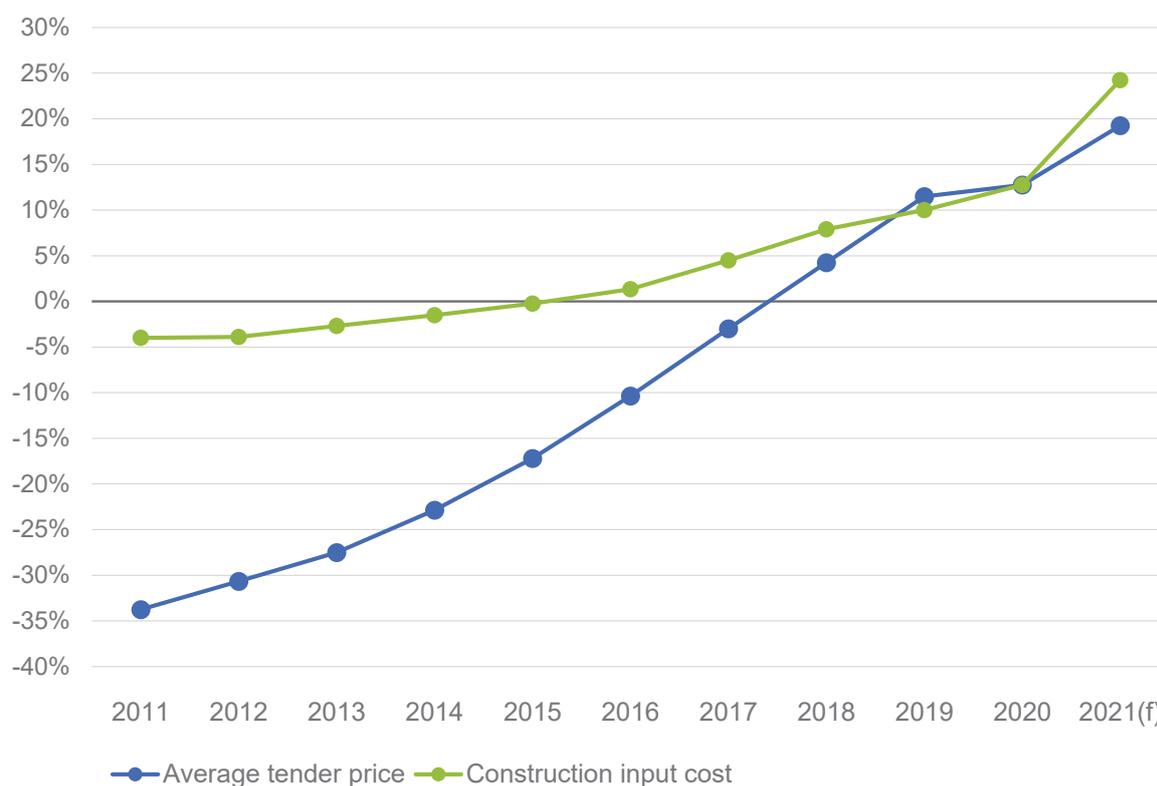
3.1 Linesight tender and cost indices

In the March 2021 update of our Ireland Handbook 2021, we noted the additional supply chain and logistics challenges associated with Brexit and COVID. As we have progressed further into 2021, these challenges have become more pronounced and materials prices, in particular, have continued to rise sharply in the intervening period. These are being driven in part by challenges in logistics and production capacity, as well as low inventories a result of COVID. Hand in hand with this increase in material costs, substantial challenges around the availability of suitable labour resources and skilled sub-contractors have also contributed to this upward pressure. The key drivers behind this are formally awarded industry pay increases feeding into the construction cost index, in addition to tender price increases being spurred on by increased demand/competition with limited

labour resources available. There is substantial evidence that 2021 is being impacted by a perfect storm of challenges for both the construction industry and indeed the wider global economy, with higher inflation rearing its head across most advanced economies. So, whilst inflation is likely to be an issue for several more years, it is anticipated that the particularly high levels we are witnessing in 2021 will moderate somewhat, as materials inventories are replenished post-COVID and production facilities return gradually to full capacity.

For 2021, Linesight is forecasting increases in the average construction cost index of between 9% to 10% overall, with higher increases in material costs, which feed directly into this index, offset somewhat by lower percentage uplifts in formal

Annual percentage change 2010-2021(f)



Source: Linesight

pay awards, which also impact this index. As the material supply challenges are addressed, and assuming no further unforeseen COVID challenges arise, we would anticipate that the construction cost index should drop to a more sustainable 6% to 7% over the next couple of years. Given the remaining challenges and the current predictions around continued robust demand for construction works generally, it is likely, however, that it will be 2024/25 before more modest and sustainable annual increases of between 3% to 5% are achievable.

Linesight's tender cost index, which reflects movements in actual tenders being returned in the marketplace, has recorded more modest percentage increases. This reflects the medium to longer-term view being adopted by contractors, who are often tendering projects which may not start for several months and will continue for several years, with the market anticipating in such circumstances that the shorter-term cost challenges recorded for 2021 should moderate in future years, as supply and resource issues in the industry and wider economy are addressed. However, increased pressure on tender levels is evident, as the supply chain and labour

challenges noted above inevitably feed somewhat into tendering sentiment. We are forecasting percentage increases in tender levels for **large-scale** projects for 2021 as likely to fall into the range of 6% to 7%, lower than those noted for the construction price index, but still substantially higher than tender increases recorded for 2020. For **less significant** projects we expect the range to be higher than 6% to 7% for 2021. Again, given the current anticipated demand for construction works generally and an uplift in contractor tendering sentiment, it is envisaged that while tendering inflation is likely to moderate, it is still anticipated to fall within a 3% to 4% range for several more years.

The above percentage increases reflect a national average, and there will be variations to these average increases across different regions, locations and project types. The increases highlight the importance of budgeting for future inflation when evaluating proposed construction projects. It also highlights the importance of seeking professional advice around specific project types and locations.

Dublin Airport

Architect:
DAA

Linesight services:
Programme Controls, Cost
Management



St Keeva |

3.2 Linesight tender price index 2011-2021(f)



Note: The Linesight tender price index is an average view of changes in tender prices across different locations, project types and project sizes. It is intended to provide general guidance only and should not be used for any other purpose. Please contact us for specific advice about construction inflation related to specific projects.

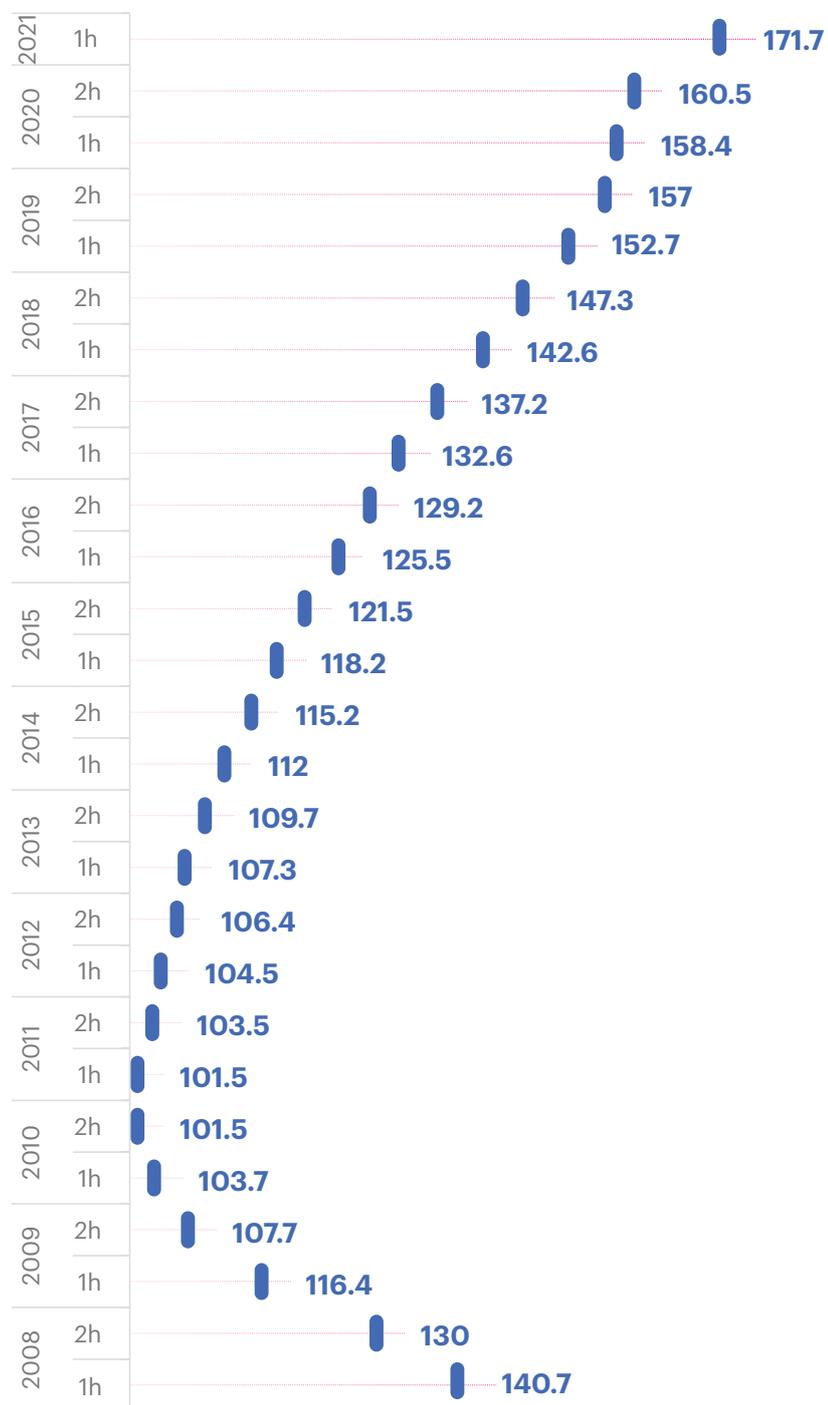
Source: Linesight

3.3 Linesight construction cost index 2010-2021(f)



Source: Linesight

3.4 SCSI tender price index 2008-2021(f)



Source: Society of Chartered Surveyors Ireland

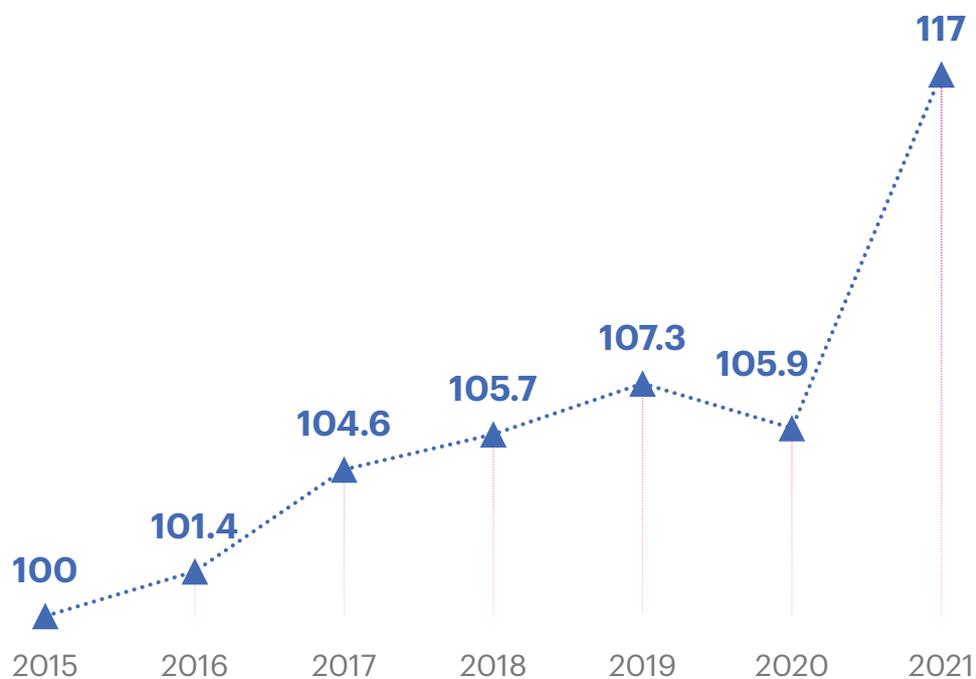


Boston Scientific, Clonmel

Architect:
RKD

Linesight services:
Cost Management

3.5 Wholesale price index building materials 2015-2021(f)



Notes: 2021 figure as of January 2021

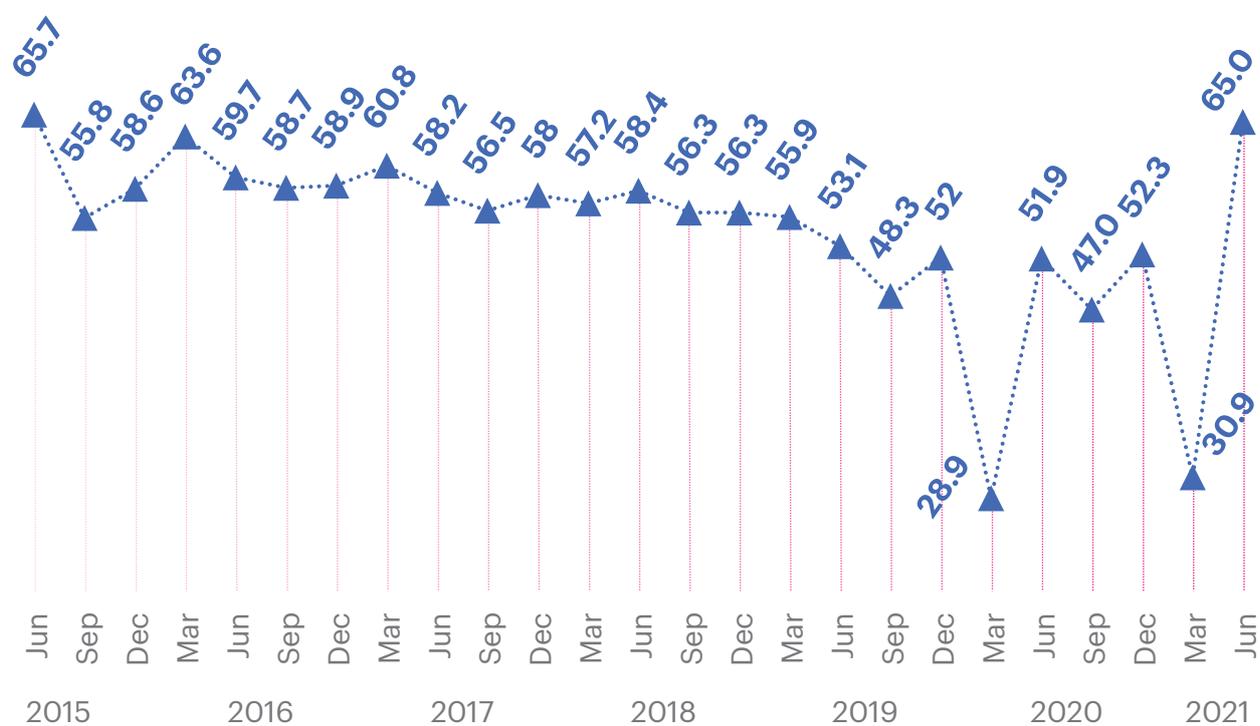
Source: CSO

3.6 Consumer vs. construction price inflation 2011-2021(f)



Source: CSO

3.7 Construction Purchasing Managers' Index 2015-2021



Ulster Bank Construction PMI	Mar-19	Jun-19	Sep-19	Dec-19	Mar-20	Jun-20	Sep-20	Dec-20	Mar-21	Jun-21
Total activity (graphed above)	55.9	53.1	48.3	52.0	28.9	51.9	47.0	52.3	30.9	65.0
Housing	60.8	58.4	52.9	51.8	32.4	55.8	44.1	56.2	33.8	68.8
Commercial	55.5	52.8	47.6	53.6	28.2	50.9	49.2	49.7	31.3	63.8
Civil engineering	43.7	42.3	42.1	43.1	25.2	43.4	44.2	42.0	23.8	57.7

Source: Ulster Bank



Having begun working with Linesight in a reception-based role, I was then given the opportunity to move into the Learning and Development team, further developing my skillset. The company places huge emphasis on personal and professional development, so I now support the creation of different pathways for colleagues to expand their skillsets and become qualified, chartered or accredited, which is very rewarding.

Jenny Robinson, Learning and Development Administrator



4 Main and subcontractors' turnover

4.1 Irish main contractors' turnover

2020 rank	2019 rank	Contractor	Estimated global 2020 €'m	Estimated Irish 2020 €'m	Actual global 2019 €'m
1	1	John Sisk & Son Limited	€1,505.00	€737.44	€1,395.80
2	-	Winthrop Engineering Limited	€585.80	€99.34	€283.17
3	4	PJ Hegarty & Sons Limited	€565.00	€553.70	€436.00
4	2	BAM Contractors Limited *	€470.00	€470.00	€589.00
5	6	Collen Construction Limited	€450.00	€171.00	€368.27
6	3	John Paul Construction Limited	€447.80	€363.00	€438.00
7	5	Bennett Construction Limited	€367.00	€284.00	€400.00
8	9	JJ Rhatigan & Co Limited	€285.17	€210.87	€367.00
9	7	Walls Construction Limited	€273.50	€273.50	€290.00
10	8	Roadbridge Limited	€264.00	€147.84	€271.21
11	10	Mac Group	€150.00	€112.50	€183.00
12	11	Ardmac Limited	€129.10	€47.97	€159.32
13	13	StructureTone Limited **	€125.00	€125.00	€140.00
14	12	Flynn Management & Contractors Limited	€107.00	€101.64	€121.10
15	15	Duggan Brothers (Contractors) Limited	€100.00	€100.00	€101.58
16	18	Townmore Construction	€85.00	€57.00	€74.00
17	16	Conack Construction Ltd	€76.40	€76.40	€79.54
18	23	Clancy Construction Limited	€70.67	€70.67	€42.36
19	19	Vision Contracting Limited	€63.00	€63.00	€52.02
20	21	Monami Construction Ltd	€61.60	€61.60	€49.00
21	22	MMD Construction Cork Limited	€49.42	€49.42	€42.43
22	17	Elliott Group	€45.00	€31.49	€75.00
23	20	Purcell Construction Limited	€42.95	€42.95	€52.54
24	25	Townlink Construction Limited	€35.00	€35.00	€27.00
25	24	Mythen Construction Limited	€26.00	€26.00	€27.27

Note: Ranked on global turnover, which refers to turnover related to the Irish business

*Royal BAM Group Turnover is €6.8bn

**StructureTone Limited Global Turnover is \$7.78bn

Figures gathered in March 2021

Source: Individual companies auditors, Companies Registration Office

4.2 Irish services subcontractors' turnover

2020 rank	2019 rank	Contractor	Estimated global 2020 €'m	Estimated Irish 2020 €'m	Actual global 2019 €'m
1	1	Mercury Engineering Group	€1,040.00	€375.00	€887.00
2	2	Jones Engineering Group	€715.00	€400.00	€631.00
3	3	Dornan Engineering Limited	€486.00	€111.78	€332.00
4	6	Kirby Group Engineering Limited	€292.74	€157.70	€245.44
5	7	Suir Engineering Limited	€189.00	€30.24	€160.00
6	9	King & Moffat Building Services	€114.76	€37.23	€69.20
7	13	Lynskey Engineering Limited	€51.02	€20.70	€51.02
8	10	L. Lynch & Co. Limited	€48.00	€48.00	€58.10
9	11	B.M.D & Company Limited	€44.40	€44.40	€43.30
10	12	DMG Engineering Limited	€44.00	€44.00	€40.24
11	14	LMC Energy Solutions Limited	€42.67	€42.67	€32.75
12	19	Weltec Engineering	€37.15	€37.15	€15.95
13	15	CJK Electrical Limited	€29.05	€29.05	€30.43
14	-	Riverside Mechanical	€21.07	€20.02	€15.84
15	17	Rockwell Engineering	€19.30	€19.30	€12.80
16	18	T Bourke & Co. Limited	€11.80	€11.80	€8.90

Note: Ranked on global turnover, which refers to turnover related to the Irish business
Figures gathered in March 2021

Source: Individual companies auditors, Companies Registration Office

Coopers Cross, Dublin

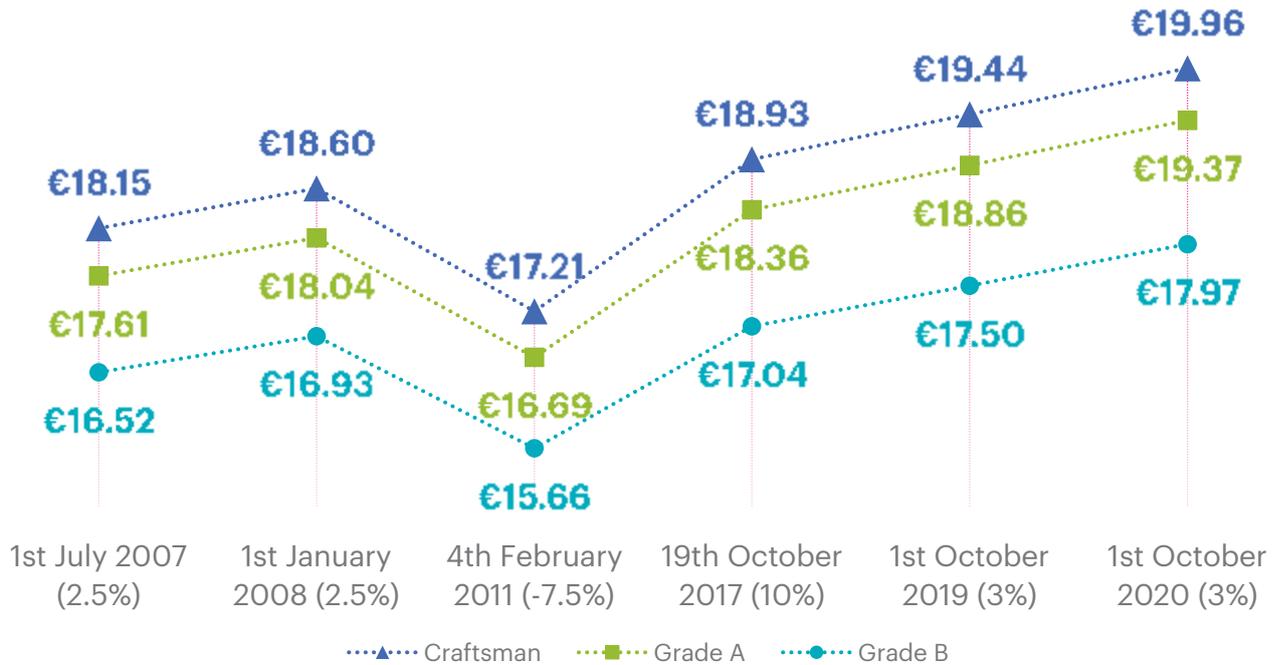
Architect:
Henry J Lyons

Linesight services:
Cost Management, M&E Cost
Management



5 Wage rates and charges

5.1 Basic hourly wage rates 2007-2020



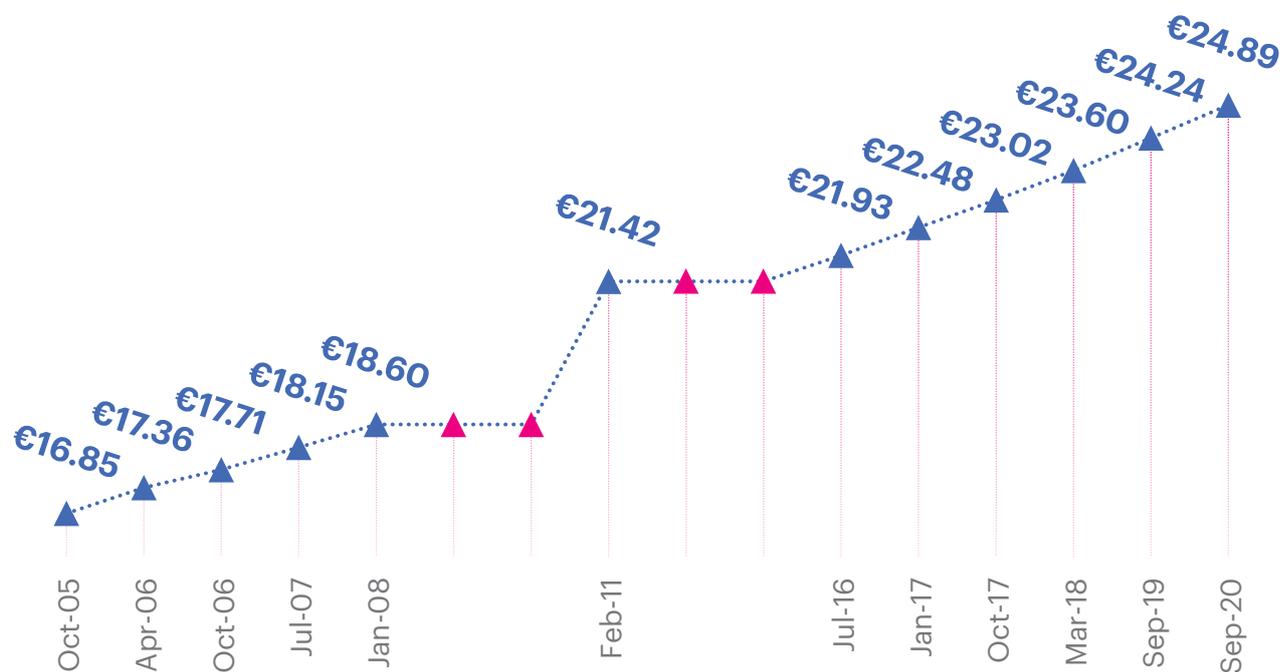
Apprentice rates

Year	% craft rate	Rate (€)
1	33.3%	€15.33
2	50%	€15.80
3	75%	€16.12
4	90%	€16.52

Note: An hourly rate of pay of €14.52 will apply for two years after entrance to the sector to all new entrant operative workers who are over the age of 18 years and entering the sector for the first time

Source: Registered Agreement for the Construction Industry/Sectoral Employment Order 2020

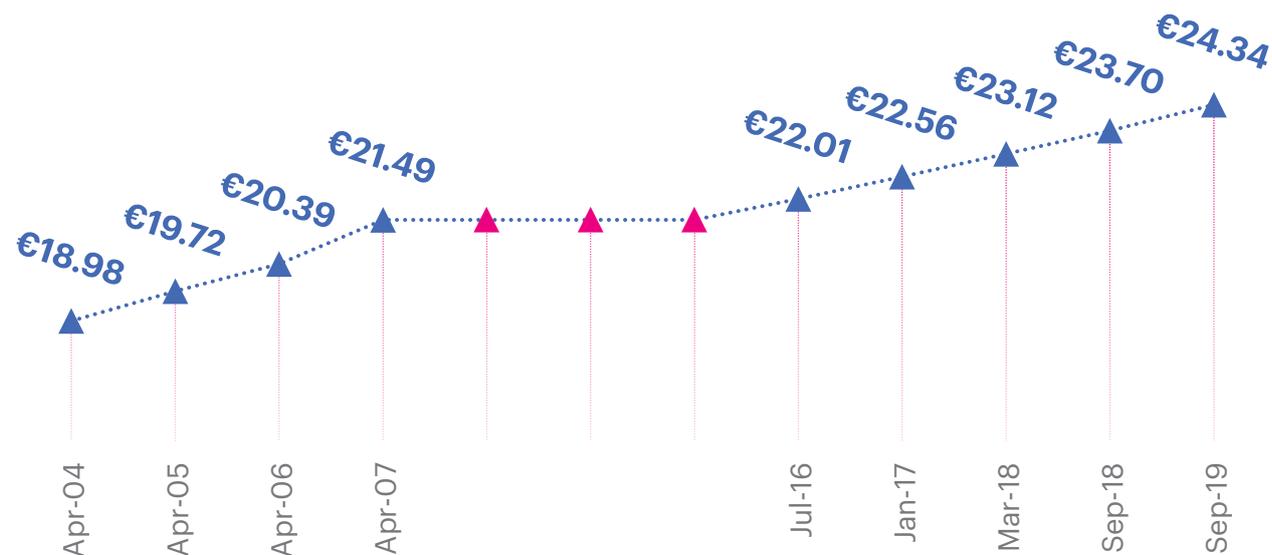
5.2 Basic hourly wage rates - mechanical 2005-2020



Note: There is a Supreme Court case pending with regards to the validity of SEOs in general

Source: CIF/MEBSCA

5.3 Basic hourly wage rates - electrical 2004-2019



Note: There is a Supreme Court case pending with regards to the validity of SEOs in general

Source: CIF/ECA

5.4 Planning charges 2021

Class of development	Charge
Most building types	€80 or €3.60 per sq.m., whichever is greater
New houses	€65 for each dwelling
House alterations	€34
Golf courses	€50 per hectare
Outline planning permission	75% of full planning permission charge

Maximum scale of charges for planning applications	
Full application most building types	€38,000
Outline application most building types	€28,500
Retention application	€125,000

Source: Local planning authorities

5.4 Fire certificate charges 2021

 <p>option 1</p> <p>Type of application Making application as per status quo</p> <p>Charge €2.90 per sq.m. up to a maximum of €12,500</p>	 <p>option 2</p> <p>Type of application A seven day notice</p> <p>Charge €5.80 per sq.m. up to a maximum of €25,000</p>
 <p>option 3</p> <p>Type of application A revised fire safety certificate application</p> <p>Charge €2.90 per sq.m. up to a maximum of €12,500</p>	 <p>option 4</p> <p>Type of application A regularisation fire safety certificate application</p> <p>Charge €11.60 per sq.m. up to a maximum of €50,000</p>

Source: Local planning authorities

“

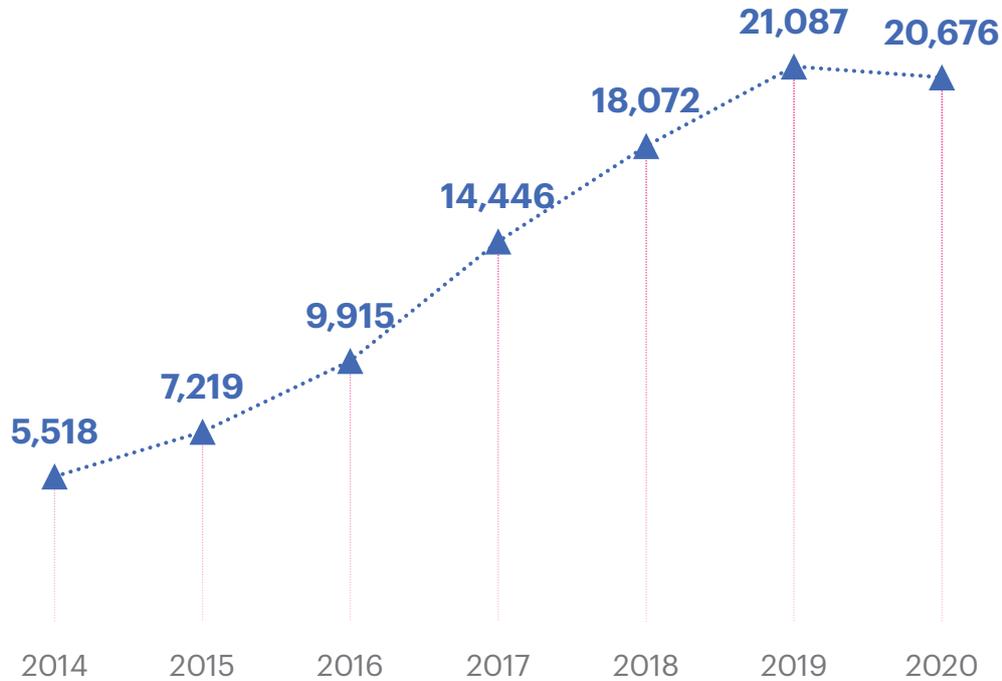
I'm afforded the ownership and responsibility of delivering strategically important projects for some of Linesight's key clients, and have had the opportunity to work in multiple sectors, which has expanded my technical understanding significantly in the five years that I have been with the business.

Cian O'Sullivan, Associate

”

6 Housing

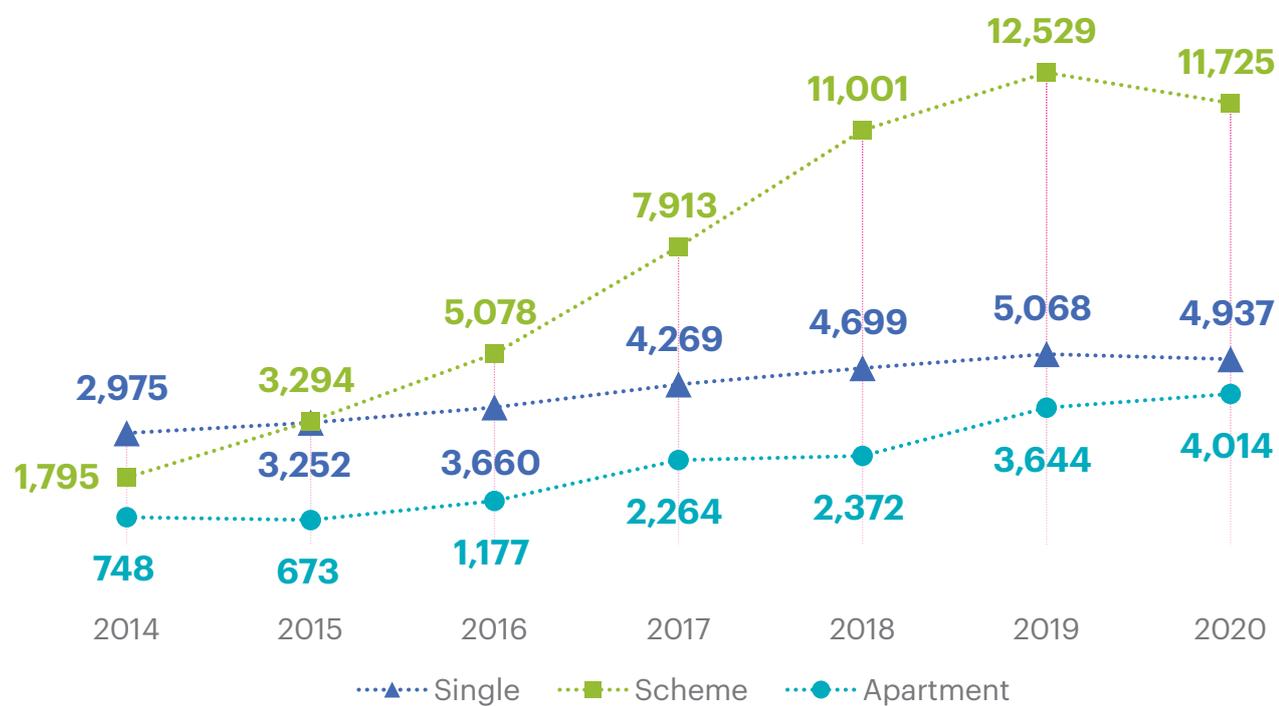
6.1 Annual housing completions 2014-2020



Year	Single	%	Scheme	%	Apartment	%	Total
2012	3,501	71.29%	964	19.63%	446	9.08%	4,911
2013	2,947	64.42%	1,155	25.25%	473	10.34%	4,575
2014	2,975	53.91%	1,795	32.53%	748	13.56%	5,518
2015	3,252	45.05%	3,294	45.63%	673	9.32%	7,219
2016	3,660	36.91%	5,078	51.22%	1,177	11.87%	9,915
2017	4,269	29.55%	7,913	54.78%	2,264	15.67%	14,446
2018	4,699	26.00%	11,001	60.87%	2,372	13.13%	18,072
2019	5,068	23.85%	12,529	59.00%	3,644	17.15%	21,087
2020	4,937	-2.6%	11,725	-6.3%	4,014	14.5%	20,676

Source: CSO

6.2 New housing completions by type 2014-2020



Source: CSO

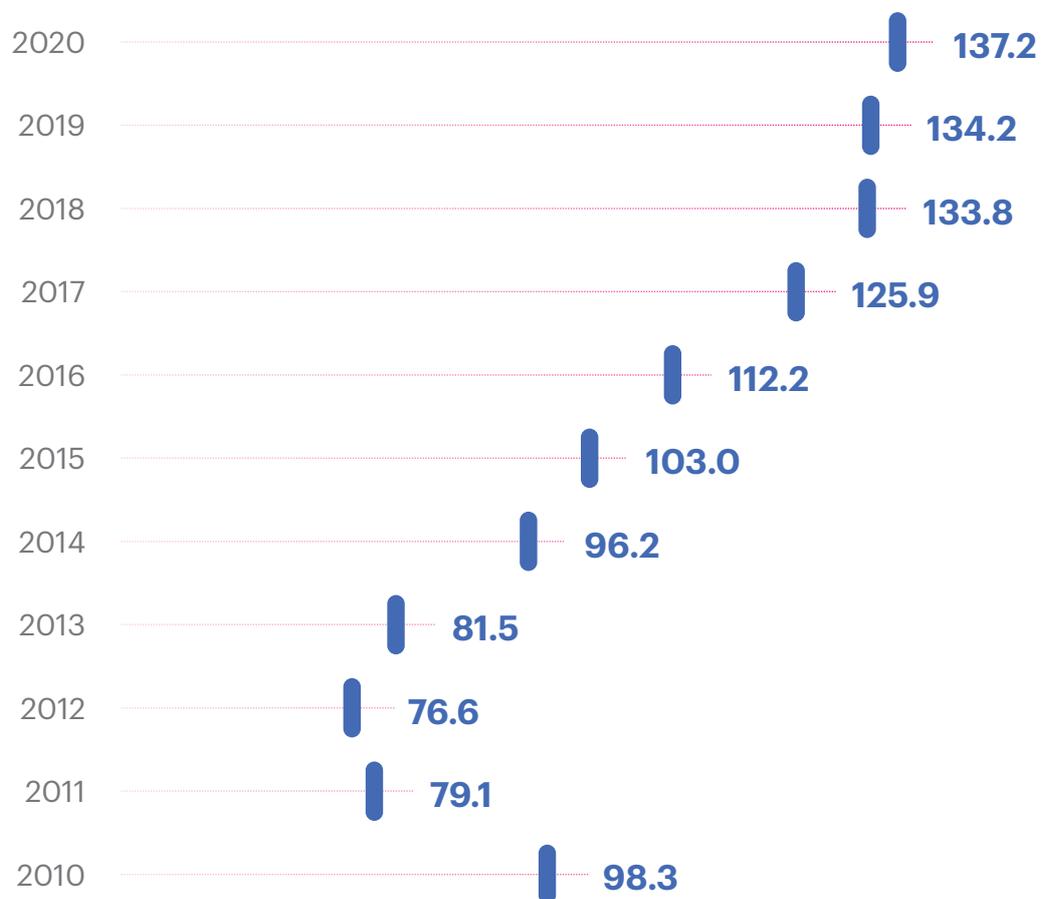
**Castleforbes Hotel and
Offices, Dublin**

Architect:
O'Mahony Pike

Linesight services:
Cost Management, Project
Management



6.3 Residential property price index 2010-2020



Source: CSO

6.4 SCSI house rebuilding costs 2021

House type	Typical size	Rebuilding cost						
		Dublin area	Cork area	Galway area	Waterford area	Limerick area	North West area	North East area
Terraced town house								
2-bed	70sq.m.	€2,302sq.m.	€1,940sq.m.	€1,836sq.m.	€1,776sq.m.	€1,831sq.m.	€1,565sq.m.	€1,845sq.m.
3-bed	95sq.m.	€2,195sq.m.	€1,811sq.m.	€1,779sq.m.	€1,681sq.m.	€1,762sq.m.	€1,478sq.m.	€1,754sq.m.
Semi-detached								
3-bed	95sq.m.	€2,290sq.m.	€1,841sq.m.	€1,811sq.m.	€1,721sq.m.	€1,791sq.m.	€1,491sq.m.	€1,855sq.m.
4-bed	118sq.m.	€2,252sq.m.	€1,822sq.m.	€1,725sq.m.	€1,638sq.m.	€1,729sq.m.	€1,478sq.m.	€1,721sq.m.
Detached								
4-bed	118sq.m.	€2,252sq.m.	€1,891sq.m.	€1,791sq.m.	€1,701sq.m.	€1,816sq.m.	€1,491sq.m.	€1,794sq.m.
Detached bungalow								
4-bed	146sq.m.	€2,160sq.m.	€1,824sq.m.	€1,701sq.m.	€1,593sq.m.	€1,816sq.m.	€1,441sq.m.	€1,729sq.m.

Garage: Total rebuilding costs range from €15,300 for a single attached garage to €27,500 for a double attached garage. This table is a guideline based on a typical, speculatively built, estate-type house in the Dublin, Cork, Galway, Waterford, Limerick, Northwest and Northeast regions. These figures are September 2019 figures. See important notes below.

1. The figures shown in the table are a minimum base cost guide for your house insurance.
2. The figures assume a basic quality specification with normal foundations, timber frames or brick/block walls, slate/concrete tiled roof, concrete ground floor and timber first floor, softwood flush doors and hardwood double-glazed windows, painted plaster to walls, plastered ceilings, standard electrics and central heating to include insulation, air-tight construction, heat recovery and heat pump to latest BER ratings. The sum insured should be increased to allow for better than average kitchen fittings, built-in wardrobes, finishes and any other items not normally included in an estate-type house.
3. House contents, such as carpets, curtains, furniture, etc., are not covered by the figures.
4. No allowance has been made for the cost of outbuildings or patios. The figures do, however, allow for a concrete path around the house, for driveway, and regrassing and fencing.
5. The figures allow for demolition costs, professional fees incurred in reinstatement and VAT at 13.5% on building costs, as well as 23% on professional fees.
6. The amounts included for professional fees have been calculated to cover the following services: building surveyor/architect - prepare working drawings and specification, and administer the building contract; chartered quantity surveyor - invite and examine tenders, process payments and agree final account; engineer - advice on structural issues. Fees associated with the certification of the house under the Building Control (Amendment) Regulations 2014.
7. The costs are based on building rates in 2021.

Source: Society of Chartered Surveyors Ireland



The Malt House, Dublin
Architect:
de Blacam and Meagher
Linesight services:
Cost Management

Review and Outlook

Global Insights

—
Primark Mons, Belgium
Architect: JCT Architects
Linesight services:
Cost Management



GLOBAL INSIGHT

Large-scale residential – addressing the shortcomings of the SHD process



Barry Cusack
Associate - Cost Management

With an overhaul of the controversial fast-track planning process with regards to large-scale residential development underway, this article explores some of the fundamental shortcomings associated with the SHD process, as well as providing an overview of the proposed LSRD process as it currently stands.

The Strategic Housing Development (SHD) process was enacted in December 2016 and came into effect in July 2017, with the aim of speeding up the planning application process and accelerating the delivery of larger housing and student accommodation proposals. Since its inception, the legislation has been marred by controversy because it bypasses local authorities by allowing direct applications to An Bord Pleanála for large housing schemes, and many SHD processes have been faced with judicial reviews as a consequence. This in turn has led to marked decline in planning permissions this year in spite of pent-up demand in the market, the pandemic, along with the uncertainty and cost associated with the SHD process, are having a bearing.

The scheme is set to close to new applications as of February 2022, with plans to replace it with the General Scheme of the Planning and Development (Amendment) (LSRD) Bill 2021, whereby an initial pre-application would be submitted to the relevant local authority followed by a ‘Final Pre-Application Consultation Meeting’ with the relevant local authority under new Section 247A for its opinion.

In this article, we look at some of the fundamental shortcomings associated with the SHD process, as well as providing an overview of the proposed LSRD process as it currently stands.

A doubling of judicial reviews

Judicial review proceedings may be taken to challenge decisions taken by public bodies and courts below the High Court, where the applicant has identified a perceived error in the decision-making process of the body in question as a result of an error of law or fact or following unfair procedure. With regards to decisions made by An Bord Pleanála, a time limit of eight weeks from the date of the decision applies. It is important to note that the Court is acting in a review capacity, so should it determine that the decision was flawed, it may nullify the decision and refer the matter back to the Board for reconsideration in line with the findings of the review.

The volume of An Bord Pleanála decisions challenged via judicial review over the last three years has more than doubled, with the majority of those applications being from third parties as opposed to the developer side. The SHD

process has led to a spike in the volume of judicial reviews, with the Board’s legal costs growing by 38.5% in 2020. According to FP Logue’s SHD Tracker, of the 49 SHD projects granted permission this year to date, 47% of those (23) have stalled because of judicial reviews. Ultimately, it should be noted that judicial reviews can have a significant impact on a project, in so far as increasing costs for developers, lengthening the schedule, leading to higher design team fees etc. This is against a backdrop in which Ireland continues to face an acute housing shortage and cannot afford for a protracted and convoluted process when it comes to large-scale residential development.

The introduction of the LSRD Bill

The proposed LSRD Bill will supersede the SHD process from February 2022, although the definition remains largely the same. In re-introducing the local authorities into the equation for fast-track applications, it is endeavouring to address one of the fundamental shortcomings of the SHD process, with a ‘two-step’ consenting process ending the judicial review being the only route to appeal.

Furthermore, mandatory timelines are being introduced in an effort to make for a more efficient process for large-scale residential development. An eight-week period will apply to allow for a pre-application consultation between developers and local authorities, in advance of the submittal of the formal application. There is then a five-week period for observations, and eight weeks overall for a decision to be made by the local authority. However, should further information be required, this can be extended to six months. Subsequent appeals to An Bord Pleanála must be decided upon within a 16-week mandatory timeframe, meaning that the maximum possible duration of the process should be 32 weeks.

The LSRD definition is largely unchanged from that of SHD – developments of more than 100 housing units, or student accommodation developments comprising more than 200 bed spaces, or a combination of same. However, the 15% limit on commercial space in place under the SHD regulations will now be 30%.

An assessment of judicial reviews

It is evident that the current system with regards to judicial reviews requires revision and reform, and under the government's 'Housing for All' plan, which was published last month, this is due to take place. Its aim is "primarily to ensure that appellants access the administrative system fully in advance of court processes, and that matters of substance are referred" to the courts.

A special division of the High Court is set to be established next year, which will focus on planning and environmental issues. Furthermore, a review of the planning process will be completed by the Attorney General by December 2022.

In summary

The shortcomings of the SHD process have undoubtedly led to distinct inefficiencies within the planning system. This in turn has led 'fast-track' applications to often be particularly convoluted and protracted, as noted above, as well as contentious. It is hoped that introduction of the

LSRD Bill will mitigate these flaws, in conjunction with the review of the planning process and the judicial review process.

Ultimately, it remains to be seen as to what the full range of specific reform measures will be. It is evident that Ireland requires a much greater volume of housing completions each year to meet demand, and must have an effective and efficient system in place to facilitate development in order to achieve this.



GLOBAL INSIGHT

The current industry challenges surrounding Professional Indemnity Insurance (PII)



Michael Smyth
Associate Director

A significant challenge, and cost, has arisen in recent years with regards to achieving adequate PII cover, with the market tightening towards an aggregate cover policy and significant premium increases.

Obtaining and maintaining Professional Indemnity Insurance (PII) has been a longstanding requirement for design team members, both in the public and private sector. Increasingly, contractors and sub-contractors also have a contractual requirement to provide PII for any design responsibility that may fall within their remit. In this article, we explore the current challenges surrounding PII in Ireland, and some of the steps being taken in an effort to overcome these challenges.

Defining PII

In a construction context, PII covers a party's legal liability for advice and design, and the evolving understanding of who is responsible for 'design' on a construction project has resulted in the requirement for the maintenance of PII policies to be wider than ever before.

The current market challenges

A significant challenge, and cost, has arisen of late in achieving adequate PII cover, and is a major issue for all professionals, main contractors and sub-contractors. It is similarly an issue for the

employer, developer, purchaser and end user, who require an adequate PII cover policy to be in place.

The PII insurance market in Ireland has hardened in recent years. Many insurers (and specialist insurers) have exited the market following consecutive years of loss-making, the implications of the Grenfell Tower disaster, and the impact of international events such as Brexit and COVID 19, amongst others. As a result, the reduced capacity and unwillingness to write PII has caused significant premium increases.

The tightening of the PI market has also depleted the availability of the traditional 'each and every' claim in favour of an 'aggregate' cover policy. Traditionally, the insurance limit is payable in respect of each claim, whereas with an aggregate policy, the limit is only payable once during the period. The commercial reality is that cover for 'each and every claim' is becoming increasingly difficult to obtain, particularly at the required values.

Furthermore, added conditions, restrictions and wide-spread exclusions relating to cladding,

fire safety and like items, have pushed PII to be offered at unacceptable terms and/or at unaffordable prices. These factors limit financial exposure for the insurer – however, it means that PII is not available at a commercially viable level.

The impact of these challenges

The impact of this issue is being felt across existing contracts and new contracts which are in the process of being executed. Many parties are finding that the level and type of cover which they previously carried as a matter of course, is now unavailable on renewal, or available with a significant price increase.

Looking ahead

The SCSI (Society of Chartered Surveyors Ireland) has recently concluded a tender process for a PII partner, who will work towards educating members in relation to PII and engaging with industry and other stakeholders.

The SCSI, OGP (Office of Government Procurement), the insurance industry and the state claims agency are actively engaging on this issue to see what measures may assist the



This Agreement contains the entire negotiations, understandings or agreements herein and no statements, promises or other facts in this Agreement, captioned as above, shall be valid unless they are in conformity with the terms and conditions hereof. This Agreement may not be a contract.

CAR
To enter into this Agreement with the Insurer, the Insurer must be provided with the following information:
1. Insurer's name and address
2. Insurer's contact details
3. Insurer's financial strength
4. Insurer's rating

industry in providing services to public sector clients.

The SCSl has made a submission to the OGP with regard to potential flexibility that may be required on public sector projects, including a detailed review of 'Liability Caps', which has been an industry issue for a number of years.

Given the current issues in the market, all contracting parties (be it in the private or public sector), should consider provisions that may allow appropriate flexibility. This will facilitate the required type and level of PII cover being achieved and maintained, for the benefit of all parties involved.

GLOBAL INSIGHT

The race to build gigafactories



Giles Heather
Director - Cost and Project Management

The UK government has escalated its strategy to tackle climate change, by mandating that sales of new petrol- and diesel-fuelled vehicles will be banned from 2030. However, manufacturing batteries to power electric vehicles requires huge factories - gigafactories across Europe.

In mandating that sales of new petrol- and diesel-fuelled vehicles will be banned from 2030 as part of its strategy to tackle climate change, the UK government has kick-started efforts to develop the new technologies that will transform the world around us.

A shift to electric vehicles, powered by a new generation of batteries, will not be without its challenges. Manufacturing batteries of sufficient power and in enough numbers to satisfy demand will require dozens of huge factories – gigafactories in fact – being rolled out across the UK and Europe.

A recent briefing from campaign group Transport & Environment said 38 gigafactories for battery cell manufacture were being built or are planned in the EU and the UK as of May 2021. Production capacity is set to rise from 460 GWh in 2025, enough for around 8,000,000 battery electric cars, to 730 GWh in 2030.

As well as the environmental case for building these gigafactories, the UK needs the additional capacity thanks to Rules of Origin laws, which from 2027 mean that UK- or European-assembled vehicles containing Asian-made batteries will be subject to hefty tariffs.

The market potential for a roll-out of gigafactories in the UK is clear, with battery gigafactory group, British Volt valued at more than \$1bn and the likes of Tesla looking to build facilities in the UK.

But much needs to be in place in order for this nascent sector to fulfil its promise.

Developers looking to deliver a gigafactory need to consider several factors. Such huge facilities require large plots of land, ideally on one level and located near the necessary power and logistics infrastructure. Appropriate due diligence around site selection, whether greenfield or brownfield, is essential to avoid significant delays around elements including earthworks and site grading requirements.

Brown and greenfield sites present different challenges, but both types require technical and legal due diligence to mitigate risks. Greenfield sites require consideration of ecological issues, and the time and cost required to deliver appropriate infrastructure and utilities. Brownfield land may require de-contamination, although such sites often benefit from good pre-existing infrastructure and an available local – and experienced – workforce.

Other site-critical factors include access to power and grid connectivity. The manufacturing process for a lithium-ion battery is very energy intensive – typically a gigafactory would need somewhere in the region of 50 megawatts of power per 10 giga watt hours of production.

British Volt, for example, says it will initially produce 30 giga watt hours of production and would need a grid connection in the region of 150mva.

However, the UK's National Grid is overloaded, and without investment in a smart-grid approach will have insufficient capacity to deal with additional requirements. Long-term planning is therefore essential.

Support for the power infrastructure required for such plants will need committed interest from investors, along with government backing, policy initiatives, plus tax and policy incentives to attract investment to the UK, rather than Asia and Europe.

There are further challenges around logistics. The capacity of the local road networks to support large numbers of HGV movements during construction and operation needs to be considered, similarly the availability of railways and

ports. Freight and logistics are critical, not least regarding the transportation and installation of largest pieces of equipment. The physical location of co-ordinated piped and cabled utilities will also need to be reflected in layouts and masterplans.

Since the regulatory compliance requirements are complex, the planning and permissions agenda for such sites means planning teams have to fully understand local plans and any restrictions or opportunities within them. Zoning and planning restrictions are an important consideration, particularly around restrictions on developed land use and other technical limitations, such as build up ratios, building heights and restricted areas.

Gigafactories need to be constructed with future expansion in mind, balancing the need to see timely returns from the investment with protecting future development. Obviously it's hard to predict the future, but successful projects usually employ a masterplanning approach to determine the end point, and then work backwards to develop the implementation plan. Put in place properly, a degree of futureproofing can be achieved with little added cost,

while providing better long-term planning.

To solve these challenges, we expect to see greater involvement from other sectors. Take the business park approach, similar to Nissan's Sunderland facility which has been coined the "world's first EV manufacturing ecosystem". These sites could obtain outline approvals to try and attract a tenant prepared to select a site at a premium. This could present a simplified route to constructing the facility. This would also suit the investor and developer, since skill sets from both sectors could be applied to areas they are most experienced in.

Alternatively, large landowners could develop degrading assets. Large run-down heavy manufacturing sites could be transformed into the manufacturing plants of the future. There might be opportunities to lease rather than purchase the sites outright, which might suit institutional investors.

To make such projects successful requires strong collaborative working relationships among all parties, particularly early in the planning stages. Developers also need

to understand the capacity and capability of the local market to support large, complex and capital-intensive projects.

As the demand for new technology and new facilities for its manufacture grows, it is vital that people harness cost and schedule expertise from those experienced in construction programmes across established sectors like life sciences, data centres and others.

Such expertise will provide the strategic guidance needed to make smart project decisions early, anticipate needs and carefully structure project planning to handle multiple parallel project complexities, and so pave the way for the future that we need.



GLOBAL INSIGHT

How the life sciences sector is collaborating to secure cost and schedule intelligence



Nigel Barnes
Head of Life Sciences - EMEA

Linesight is leading a collaboration with the major pharmaceutical companies on benchmarking data, as a global effort to collate capital project benchmarking costs, schedule intelligence and analysis in a central, independent, confidential fashion.

Defining benchmarking

Benchmarking involves the use of data to compare a company's performance against industry measures and key indicators. It isn't a new concept – it has been used in the construction industry as a method of improving performance in a systematic and logical way, by measuring and comparing against competitors, or against other business units or projects, and then using lessons learned to make targeted improvements. It involves answering the questions:

- Who performs better?
- Why are they better?
- What actions do we need to take in order to improve our performance?

And yet, we now find ourselves entering an era where benchmarking is all the more valuable and relevant, in the context of global programmes and projects of a significant scale, so how we collate, level and present comparative studies has changed considerably in a matter of years. It is what we at Linesight often refer to as the next phase of benchmarking – cost and schedule intelligence, which provides meaningful, easy-to-digest data, to facilitate

informed and timely decision-making.

Our life sciences collaboration

Linesight is leading a collaboration with the major pharmaceutical companies on benchmarking data. Merck, AstraZeneca, BMS, Pfizer, GSK, Ipsen, Viatrix, WuXi and others are already participating in this global effort to collate capital project benchmarking costs, schedule intelligence and analysis in a central, independent, confidential fashion. Connecting the world's leading life sciences organisations means that we are enabling peer and market alignment by providing valuable cost and schedule intelligence on all major projects.

Commenting on the initiative, Steve White, Leader of Global Estimating and Control at Merck noted: *“Benchmarking data is essential to gauge the capital effectiveness of our projects, both internally and externally with other pharmaceutical companies.”*

Steve Townsend, Director Project Controls, Global Capital Projects at GSK also added:

“As we seek to continuously improve our project scoping and delivery, we must

understand how we compare to our peers within the industry. Participating in this programme offers us the necessary access to key, comparative data and should provide us with improved confidence.”

The rationale and some key challenges

Benchmarking is an extremely powerful and useful tool when used correctly, to gauge performance against key indicators and against the market. It facilitates value in the building of a business case for CAPEX expenditure, providing a level of predictability and certainty with regards to the information being presented to the financial decision-makers within an organisation. For many within the life sciences sector, this is now becoming a key requirement in securing approval for projects and programmes. It demonstrates capital effectiveness and identifies opportunities for improvement and optimisation. Other key benefits it can deliver include:

- Forward-planning information as a cost/duration range
- Enhancing the quality of early estimates and schedules, and allowing for

these to be appropriately interrogated and challenged

- Setting cost target ranges
- Providing a valuable forensic tool for a programme
- Strategic planning of project execution
- Identification and management of scope creep or cost overruns

However, it is important to note that it presents its challenges, and the importance of expert guidance across a benchmarking project cannot be understated:

- It is not an estimate – it is a baseline indicator only
- No two projects are alike, and levelling is required to make the comparisons meaningful
- Specific cost and schedule drivers are often not fully known or understood
- The ‘normalisation’ of a benchmark is not an exact science
- Owner experience and expertise varies greatly

- Project drivers can have a significant impact on the resulting data

A meaningful output

While the data in itself is extremely powerful, it only becomes meaningful and particularly informative upon its presentation – it is at this point that it becomes cost and schedule intelligence. Ultimately, 93% of all human communication is visual and 90% of the information sent to the brain is visual, so representing the output in a visual context is key in enabling stakeholders quickly understand the significance of the data. It allows for instantaneous processing of large volumes of complex data, relationships and patterns to be quickly identified, and emerging trends and concepts to be pinpointed, which are all fundamental parts of the decision-making process.

Applicability for other sectors

Although Linesight has, of course, worked on extensive benchmarking projects across multiple sectors, this is an

innovative initiative with regards to the level of collaboration at play between these major life sciences organisations. There can be a reticence in some sectors for competitors to come together to collaborate, but our panel understands the value of the data output and the importance it will play in bringing predictability and meaningful insights to the sector. Of course, this is based on our commitment to ensuring that datasets are anonymised.

To learn more about what the life sciences benchmarking collaboration or to participate in this programme, please contact lifesciences@linesight.com.



2 KILDARE STREET



Kildare Street, Dublin

Architect:
RKD

Linesight services:
Cost Management, Project
Management



Parkgate Street, Dublin

Architect:
Reddy A+U

Linesight services:
Cost Management

GLOBAL INSIGHT

Examining key cost factors for senior living developments



Aidan Walsh
Director

Global life expectancy has increased radically over the last number of years, with the World Health Organization (WHO) reporting that it increased by 5.5 years between 2000 and 2016. The European Commission also projects that by 2070, the old-age dependency ratio will increase to 51.2%, implying a move from the present 3.3 working-age people for every over-65 citizen, to just two.

According to the CSO, the Irish population aged 65 years and above increased by 19.1% between the 2011 and 2016 censuses to reach 637,567, and Future Analytics projects that this will increase very significantly from its 2016 level to nearly 860,600 by 2026. As a result, there is and will continue to be considerable demand for senior living alternatives in Ireland, with the current market offering not providing the appropriate or necessary range of options to account for the varying requirements of our aging population.

This has led to growth in senior living accommodation market in recent years, but the market is immature and remains undersupplied, which has been exacerbated by the pandemic. However, it constitutes an attractive asset class for a number of reasons:

- Long-term revenue opportunity, backed by the demographic shifts highlighted above
- Given its alignment with BTR and PBSA, with the added healthcare aspect, it presents an opportunity for developers in the residential space. Not only in terms of

portfolio diversification, but it is less competitive than these more established asset classes

- Conducive to modular methodologies, given the degree of repeatability, so the benefits associated with off-site (e.g. shorter programme can lead to earlier delivery and achieving return on investment sooner than with traditional methodologies)
- It benefits from a less cyclical nature
- Downside protection offered by conversion potential into more generic residential
- Longer occupancy periods than assisted living or nursing care homes, whereby individuals are entering through necessity and typically at a stage of higher dependency, further along the aging trajectory

Schemes now being developed for older people vary across the three main residency types: independent living (IL), assisted living (AL) and nursing home (NH). When commissioning and designing a senior living development, as the level of

care increases for a resident, so too do operational costs. With COVID highlighting the need for greater care and vigilance against infectious diseases, tight planning and cost control considerations will be necessary.

The five main cost drivers that need to be managed across senior living developments are:

1. Floor area
2. Rehabilitation facilities
3. Occupational therapy requirements
4. Communal and recreational spaces
5. Security

As the level of care grows, so does the amount of additional space required, while extra accessibility features also need to be considered. This inevitably leads to an increase in the overall cost of development. Some schemes in the US and Europe combine the three residency types mentioned above into a single development, reducing the cost of developing a full nursing care home facility by splitting the proportion of residency types. This also serves to futureproof residences, as individuals can



Glencar Edenmore, Dublin
Architect: DHD Construction Ltd and JNP Architects
Linesight services:
Cost Management

move between units as their level of care requirements increase.

Floor area

As with all development schemes, floor area is the main cost driver in senior residential projects. Up to 50% of space in nursing home developments is apportioned to 'bed' space. The ratio of bed-to-ancillary/support spaces (such as rehabilitation suites, etc) can significantly impact the cost of development for senior accommodation providers.

In cost terms, independent living units which have minimal additional support features would be closer aligned to a standard residential unit development or purpose-build to-rent accommodation model. This would cost 10% to 20% less than standard nursing home development construction.

Rehabilitation facilities

The construction of rehabilitation space for residents is an important consideration when drawing up plans for a later living scheme. The additional cost associated with these areas can vary, depending on the level of medical treatment being offered. IL or AL facilities will require less rehabilitation space, since residents will be active and will not require on-site physiotherapy or other such treatment.

Occupational therapy requirements

Another driver of floor area is the space required to facilitate movement and support. Typically, nursing homes will be designed to facilitate one and two care providers in assisting residents with their movements in and out of bed, or around a room. In IL/AL settings, individual room floor areas may be smaller, given residents are able to move unaided within their unit (15% reduction on rooms). Similarly, IL and the majority of AL units do not require the installation of individual hoists, which can often cost between €3,500 and €7,500.

Another consideration is the provision of wet rooms, often a standard feature of AL and nursing home facilities. Accessible bathrooms with additional Building Regulation Part M features would need to be larger and therefore increase the required floor area per bed.

Communal and recreational spaces

Central catering facilities/dining and communal spaces add considerable additional floor area, depending on resident numbers and activity offerings provided. As IL residents often cook independently this reduces the need for larger kitchen and dining facilities. Internal and external recreational spaces are particularly important social

aspects of senior living, and facilitate the sort of interaction residents seek when moving into senior living developments. External landscaped areas (with seating), sensory areas, TV lounges, multi-purpose rooms and halls for entertainment and other activities can be constructed on site and shared across a campus by all residents.

Safe and sound

Security – and the peace of mind that goes with it – is often a major factor in a person choosing one senior accommodation facility over another. Perimeter security, external lighting, CCTV, security alarms, security/medical response buttons and nurse call systems should be considered as part of a development budget.

Other security measures include protecting vulnerable patients or residents from wandering off the premises. Systems such as swipe access (internal and external), automatic doors and centrally controlled security systems may be required, while visitor control will be an important consideration going forward in light of the impact of COVID-19 on older people in senior living accommodation.

Conclusion

With improvements in healthcare and people leading

longer and healthier lives, senior living options are growing. The best senior living schemes are responsive to the needs of a new generation of resident, whose needs will adopt and change over time. This increasingly complex and sophisticated market requires enhanced cost and project management controls to ensure proper delivery of the development.



**Ballymun North Quarter
Student Accommodation,
Dublin**

Architect:
MCA

Linesight services:
Cost Management



GLOBAL INSIGHT

Roadmap to achieving a 'single source of truth' for projects



Cathal O'Donnell
BIM Implementation Lead

There is widespread agreement that the take-up of BIM across the construction industry is desirable. A 3D-based modelling process that enables stakeholders across a construction project to see the various stages of development in an easier way will undoubtedly improve productivity and reduce risk.

Defining benchmarking

The case has been made convincingly. Yet BIM's adoption has been slow, largely because the industry has not yet fully embraced digitisation and innovation. Take-up can be improved, but it will require leadership, stakeholder buy-in and governmental support if the industry is to realise the full potential of digital construction.

Despite the obvious advantages of a 'single source of truth' for project-critical documentation enabled by digitisation, there are obstacles to be overcome before full-scale adoption of a digital approach becomes a reality. Such adoption will require a consistent approach being applied by all stakeholders in the construction industry, alongside legislation to standardise supply chain production. A good start on this has been made by the ISO 19650 international standard and talk around the published study on the development of a European Union framework for digital building logbooks.

If left unmanaged, siloed attitudes can appear across the various construction disciplines. This takes the form of prioritising

our specific requirements without adopting a holistic life cycle perspective, that would consider the requirements of all stakeholders from design through to completion and handover to facility management.

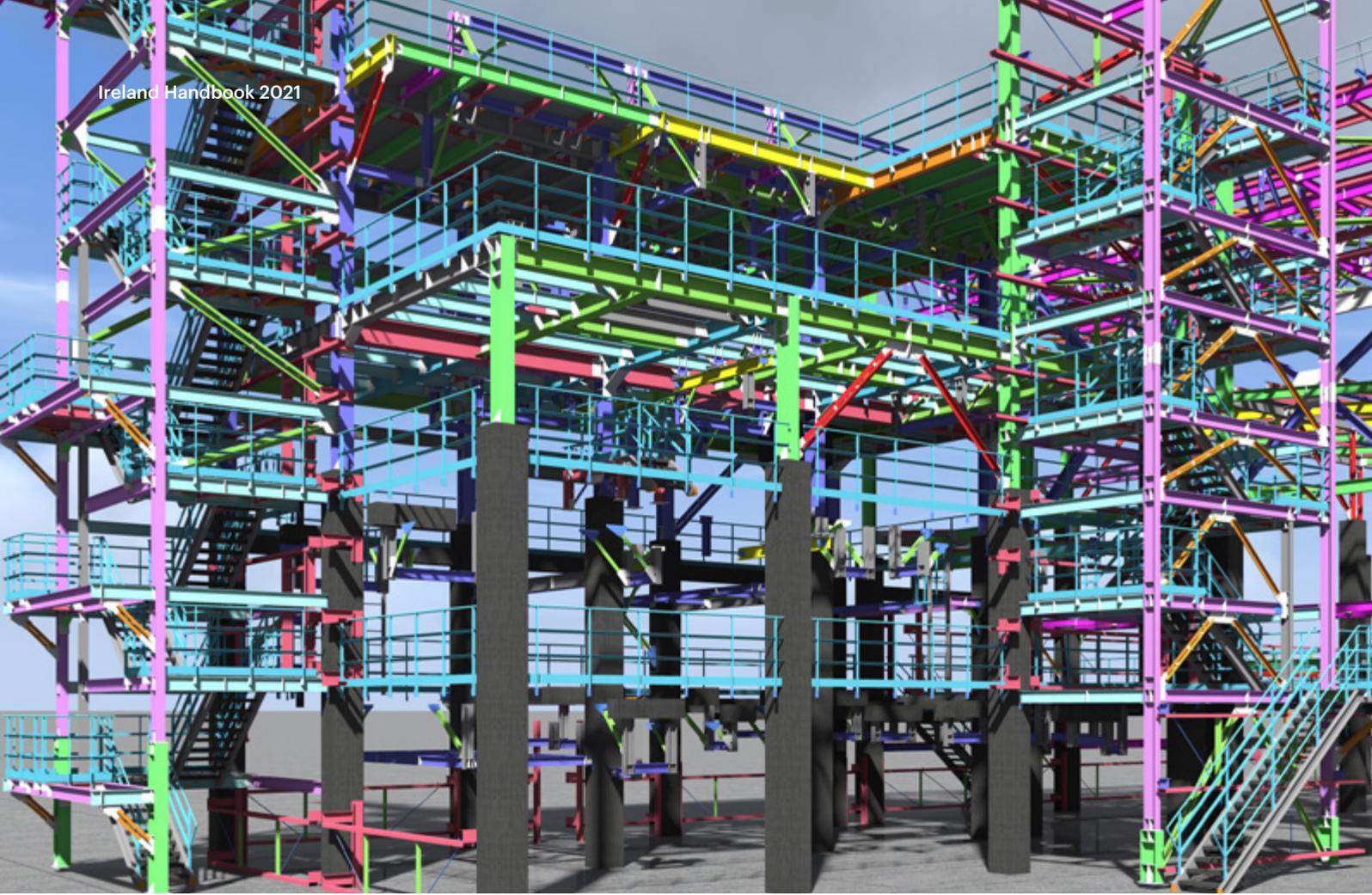
While the technology now exists to enable this holistic view, there are significant challenges to overcome in order to build new relationships and trust between the various disciplines.

In addition, there are also practical barriers due to the current lack of interoperability between platforms used by different stakeholders. BIM is used by modelers to create the initial model, enabling a digital representation of a component, which can then be manipulated and coordinated within an accurate three-dimensional space. These elements become placeholders for information, the building blocks for data-rich content. The issue arises when the initial model is passed between different vendors and is used by different stakeholders, including contractors and cost managers. Each discipline prioritises different pieces of the data, and their platforms are designed accordingly. This means that key data is often missing resulting

in reduced data quality and estimating efficiency.

This approach neglects the needs of disciplines who add to the process further down the line. For example, an architect or MEP designer may only want to input the base information within a model element, to help identify it in a schedule or on a model/drawing. The architect will assume that if the element is named wall type A and the NBS or other spec documentation is referenced or linked, then that should be enough to collaborate and communicate intent. This, however, is not focusing on a thorough digital workflow. The materials of each wall element must be clearly identified and tied to the data in a shared database that has access to the technical submittals process. The wall will need to be broken up into its individual layers so it can be fully digested in platforms like CostX etc. and leverage the most out of the modelling tools for take-off.

From a project management and cost centric approach, Linesight focuses on the 4D and 5D aspects of digital design. By integrating P6 programme tasks and sequencing model elements, we better visualize the digital construction of the works.



Future BIM professionals will need to better define what data is held within elements of the model. Cobie deliverables and the level of information matrix need to be defined and adopted by all parties, especially the appointing party prior to starting any digital workflow and must be linked to the workflows on site to insure smooth interaction and coherent transaction of required data. This approach, if implemented at the initial stages of design, will help align all parties involved to arrive at a 'single source of truth'. We are at a point where the benefits of BIM as a process should not be held back by hugely complex technical working methods. Instead, we need to find solutions to make a given digital workflow accessible to anyone who wishes to engage with it.

The data for all items and activities in relation to the works are being collected anyway by the teams involved. It is about trying to find a common platform to collate all of this data into a form that can be easily accessed and integrated in cloud-based systems. Business-case BIM sees traditional methods being used in the background, and BIM processes updated after the fact, which only aids in subverting the true benefits of using a digital plan build workflow. This is very evident when cost managers and end users try to use models and cloud-based data integration tools, just to find the trail of information is not fully reliable. Basic BIM, just to win work, only kicks the can down the road. And unless you truly embrace the new ways of working, the industry will not progress down the digital

workflow path.

We as an industry need to avoid the BIM trap of just using models and software as marketing tools to visualize aspects of construction. Instead we need to adopt BIM as a process to facilitate data sharing between all disciplines, enabling improved efficiency and productivity.

New technologies and platforms will enable all key stakeholders to retrieve, track and manage all building asset data. This should result in cost management efficiencies and make for a more effective facility management handover.

Platforms that enable effective collaboration between separate Architecture, Engineering and Construction (AEC) entities will

continue to develop, with some progressing towards a more integrated project delivery structure - for example dRofus and Autodesk BIM Docs.

These platforms enable shared responsibility, and risk can be managed in line with BIM and digital practices.

More cost-effective model sharing methods and platforms will be required, to enable the streaming of consistent and verified data for cost management systems. These systems will enable project teams to cross check, verify and approve data from models using fieldbased apps and equipment, such as point cloud and 360 site cameras. In time, more complex model compliance checking and earned value are being developed by way of blockchain algorithm, which is food for thought or the future, as well as indicating the progress and direction that the industry is striving to achieve.

This is still in its infancy, however. More investment and case studies will be required before industry-wide adoption is guaranteed. In order for there to be a more effective 'single source of truth' around this technology, the potential for BIM in the early stages of a project, including the design process, needs to be included in any timeframe related to the tendering and planning stages of a project. It also needs to be a consideration throughout early contractor engagement during pre-tender submissions. Making more relevant and informed choices,

while still maintaining tendering competition rules, can drive maximum efficiency at key discussion points and milestones.

As well as the industry upping its game around the use of BIM, we need to see a model and data-first approach that is effectively regulated by a uniform government-led approach and enforced at the start of the supply chain. In fairness to contractors, they cannot include all the required data if it is not available from manufacturers from the outset. This could be achieved through a standardization approach by the EU whereby BIM model objects receive a CE accreditation across all manufacturers and equipment. This would ensure that projects have base data incorporated within all elements, seamlessly exchangeable between software and platforms, prior to supplying the EU market.

What else needs to change? Certainly, training can be tailored to expand BIM's reach. A culture change will also be necessary if the industry is to take full advantage of the technology. This can be achieved through incremental steps. It could include increased use of point clouds, 360 site recording cameras and mixed reality apps on-site (VR, AR and mix of both), to demonstrate how modelling techniques can transform the visibility of a proposed scheme. Moves like this would, we believe, increase the likelihood of the technology's potential being

accepted by all stakeholders.

In order to achieve a 'single source of truth' for data, we need to move towards BIM Level 3. It is the only approach that fully connects the data chain from start to finish, helping to create end-to-end efficiencies. In a Level 3 system, BIM data is not converted into files and emailed or sent via FTP sites to various parties. Instead a 'single source of truth' is established, owned by the appointing party, stored in a cloud-based database and continuously updated through the life cycle of the project, by all relevant disciplines. BIM Level 3 allows data to be transactable for construction, fabrication, and even facility management purposes, enabling open collaboration and building lifecycle management. It can be achieved in the medium term, but it will require leadership in each area of the construction industry. Only by having champions for the technology – who are prepared to show, in practical terms, what it can do – can its potential be fully realised.

Change will be driven through adoption, training, legislation, and mindset changes. Linesight will be leading the charge to change.



**Donnybrook Manor Hotel,
Dublin**

Architect:
Henry J Lyons

Linesight services:
Project Management,
Due Diligence, Planning
and Scheduling, Safety
Management



GLOBAL INSIGHT

The trends behind a booming data centre sector



Paul Butler
Director

Throughout what has undoubtedly been an exceptionally challenging year for the construction industry, the data centre sector has remained resilient. Despite a 10% decline in global data centre spending in 2020, mainly attributable to inhibited cash flows at the hands of the pandemic, the sector is expected to post 6% growth in sectoral infrastructure spending this year (Gartner).

The data centre market is projected to grow by €71 billion between 2020 and 2024 in Europe alone.

Demand is certainly robust and continuing to grow, as global internet users spend US\$1 million online, send 41.7 million WhatsApp messages, make 1.4 million calls and upload 500 hours of video in a given minute each day.

There are a number of key trends at play within this booming sector, which are explored below:

The green agenda

Clean energy generation and a greener approach to the construction phase are high on the agenda of a number of players in the data centre space. It is not surprising that the sector is conscious of its environmental impact against a backdrop of ever-increasing demand – by 2025, data centres may account for 20% of the world's energy use and 5.5% of its carbon footprint (Anders Andrae). This is compounded by a number of other factors, including: consumer demand for renewable energy options; the existence of government mandates and tax incentives; and a desire to tackle emissions

in a meaningful way – utilising a low carbon approach, as well as being more mindful of materials and the supply chain.

From an operational perspective, the focus is on optimising infrastructure, server utilisation and energy efficiency, leveraging on-site power generation and storage. The operational carbon impact of a data centre can be more than twice the embodied carbon impact, and historically, it is the operational side that has garnered more focus in terms of improving efficiencies and identifying renewable energy sources. However, embodied carbon within the construction phase has certainly come more into focus.

There are a number of opportunities to tackle the sustainability of the construction process, from embracing new practices with no chemicals/by-products to repurposing existing stock rather than building from scratch. Low carbon materials are also particularly topic at present, with a number of interesting initiatives underway – for example, the Buildings as Material Banks project (BAMB2), which is partially funded by the EU, and 'data passports' for materials, to create incentives for suppliers to develop more

reusable or 'circular' materials, whereby the value of the materials is better understood and recorded, to encourage their recovery and reuse.

One of the key considerations with regards to the sustainability ambitions of operators across the sector in the construction phase is that early engagement of the appropriate expertise is fundamentally important to fully obtain value – there are multiple, complex schedule, cost and procurement considerations. The true value is in the transparency and predictability that can be provided – providing accurate information at an early stage to build the business case for an organisation's C-suite, to facilitate informed decision-making, as there is a balance between cost versus their own green objectives.

Increased focus on security

As COVID emerged and our digital reliance grew, large-scale data breaches have grown, with a 273% increase in Q1 2020 (Iomart). As the transition to a more digital lifestyle was thrust upon us, the shift towards the cloud accelerated and there was a pressure to maintain 'business as usual' in the face



**Curaheen Point Student
Accommodation, Cork**

Architect:
O'Mahony Pike

Linesight services:
Cost Management

of a global pandemic, security may have taken a back seat for some businesses. Destructive attacks, whereby data or networks are damaged, are up 102%, while ransomware is up 90%. As confirmed by Tom Kellerman, head cybersecurity strategist at VMware Carbon Black, a cybersecurity firm, "With the mass shift to remote workforces, the corporate perimeter has been broken. This is compounded by the reality that most home networks are insecure, and household smart devices are vectors for attack."

Providers are increasingly focused on not only physical facility security, leveraging the use of x-rays and biometrics, but also offsetting the risk of cyber breaches as edge data centres continue to increase in popularity.

The emergence of secondary data centre markets

We are seeing the secondary global data centre markets thriving across Europe, alongside the continued success of the FLAP-D markets (Frankfurt, London, Amsterdam, Paris and Dublin), which have over 500MW of capacity under construction. As well as driving

workloads towards the edge, and typically providing greater margins, they often offer tax incentives to data centre providers and more affordable land opportunities, better suited to large-scale facilities.

The proliferation of hyperscale

Large-scale facilities are expected to dominate the market over the coming years, reaching US\$23.3 billion by 2024, with smaller scale data centres growing to just over \$7.2 billion. Over the last two years, 111 new hyperscale facilities were completed, and in spite of the challenges posed by COVID, 52 of these were in 2020.

As we continue to place huge demand on our digital infrastructure, it is easy to see why hyperscale is seen to be the way forward, with 2.1 million new racks expected between the end of 2020 and 2025. Ultimately, they are considered to be more sustainable than other facility types in terms of supporting this demand.

Harnessing AI and ML for higher utilisation

The use of artificial intelligence (AI) and machine learning (ML) with the data centre space

is not a new concept, but the application continues to broaden. From the benefits with regards to temperature regulation to maintain the required cool environment, to equipment monitoring to flag issues early, these technologies offer a host of benefits, and many facilities are now deploying AI and ML workloads.

Furthermore, AI and ML can support increased rack density, and with the abovementioned increasing demand, there is pressure with regards to utilisation, which has led to an increase in global rack density to an average of 6-8kW (Arizton), although some highly developed markets are operating at 10-12kW.





Spencer Place South, Dublin

Architect:
Henry J Lyons

Linesight services:
Cost Management, Project
Management, PSDP

GLOBAL INSIGHT

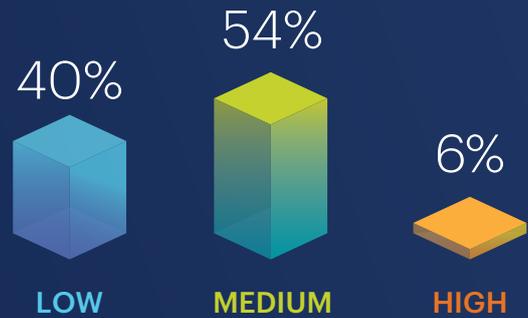
Brexit - what is the market sentiment?



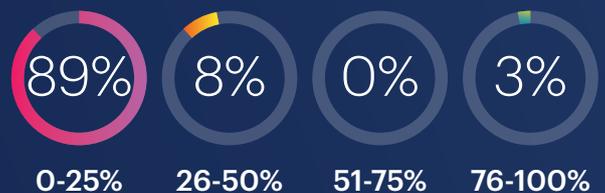
Niall Greene
Director

Brexit has been topical over the last number of years, but following a few months of its transition period, we recently conducted a survey to see what the market sentiment is. The results are presented below, with * denoting cases in which rounding upwards has occurred.

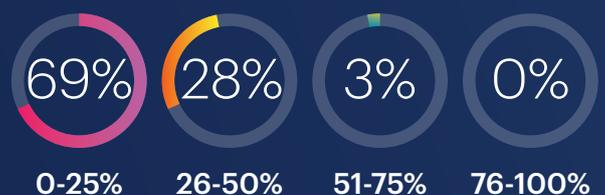
What **level of impact** do you see **Brexit having** on your business?



What **percentage** of your **Irish turnover relates to the UK?***



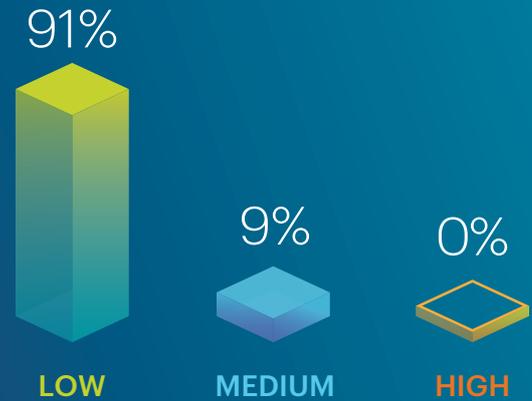
What **percentage** of your annual turnover in terms of **materials and labour is sourced from the UK?***



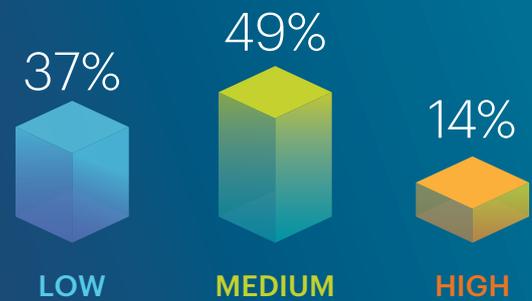
Rank these factors in order of **the impact they will have on your business** with regards to Brexit

- 1 ■ Delays to delivery of materials
- 2 ■ Increased cost of materials
- 3 ■ Reduced supply chain availability - materials
- 4 ■ Changes in tariffs
- 5 ■ Restricted movement of people
- 6 ■ Reduced supply chain availability - labour

What **level of impact will Brexit have on your cashflow** in relation to expedited payment of tariffs and VAT?



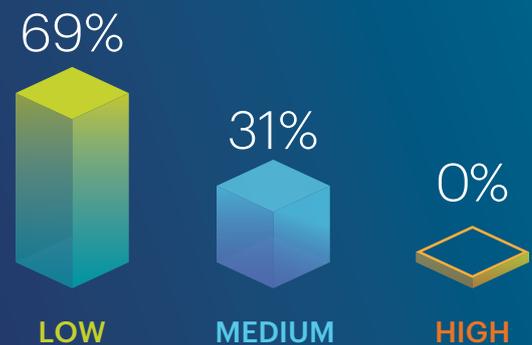
What **level of impact will compliance with the CE certification of materials** have on your business?



Will you have to **move away from UK suppliers** as a result of Brexit?



What **level of impact** will Brexit have on your **cost of doing business**, and therefore, on increasing your tenders?



Will your **conditions of contracts** require amendments?



How do you envisage the **risk of Brexit being apportioned in your contracts?**



How is your business **mitigating against the risks of Brexit?**



UK consultant qualifications are no longer recognised in the EU. BBA certificates are no longer recognised in the EU. The whole BCAR regime is in serious trouble.



Changes in supply chain material specifications and supplier selection. Awareness training particularly in relation to possible specification compliance risks and tariffs. Much of the funding for Irish projects would have traditionally come through the UK so diversification to North America and European funders is much more prominent now.



Sourcing alternative materials and plant from EU. Where this is not possible, organising deliveries in adequate time and tracking deliveries closely. We have appointed a freight management company to manage tariffs and import controls.



Brexit clauses in building contracts to apportion the costs and risk to the parties best placed to manage the risk.



Removing products being specified from UK suppliers generally, Ensuring that risks of Brexit are fully understood throughout the tendering process to de-risk impacts for clients.



“

There is a flexible and extremely personable atmosphere within Linesight. It's coupled with vast experience across the business and an emphasis on mentorship, which has helped to guide and support my career progression over the past six years, including through the APC process.

Grace Cranley, Associate - Cost Management

”

What we do

Our services are tailored for your project, delivering maximum efficiency from inception to completion. We specialise in key areas, to provide faster project delivery, greater cost efficiency and maximum value.



Project Management

Delivering project success through strategic planning and stringent controls.



Supply Chain Management

Providing efficient logistic strategies to streamline the delivery of equipment and services.



Cost Management

Driving better value for money at every stage of the construction process.



Health and Safety

Securing compliance, and providing design teams and clients with expert advice and independent review.



Program Management

Managing a network of projects simultaneously in order to deliver program success.



Consultancy

Providing professional, hands-on advice and guidance throughout every stage of your project.



Project Controls

Controlling every aspect of a project to deliver maximum performance and long-term success.



Planning and Scheduling

Providing an initial project overview, developing a detailed structure and identifying schedule controls.



Procurement

Adopting the most appropriate strategy to suit both public and private sectors.



Monitoring and Due Diligence

Examining project information independently, identifying issues, and ongoing project monitoring.



Adamstown Station, Dublin

Architect:
Henry J Lyons

Linesight services:
Cost Management



Our values

Over the years, we have developed a way of working that delivers quality and consistency in how we operate. Our five core values inform what we do and how we do it:



Partnership

We are focused on our clients' goals and work closely with them to achieve the best possible results. We believe in collaboration.

When we share our experiences and combine our expertise, we can achieve great things.

Progress

We believe in always moving things forward and finding better ways of working. We're not just focused on what we do, but also on what we can achieve. We are driven by success – for our clients, our partners and each other.

Integrity

We are fair, open and ethical in everything we do. We challenge things we believe to be wrong and are open to being challenged by others.

We take pride in the quality, accuracy and independence of our work.

Resourcefulness

We work around the world, in diverse sectors and for clients with distinct ambitions. This requires us to act effectively and creatively in new and complicated situations. We rely on our individual and collective abilities to resolve any challenges we may face.

Long-term view

We believe in working sustainably, and so we build enduring relationships with our clients and partners. We work together in a way that is respectful and considerate of each other and the wider society in which we live.

**Camden Yard Residences,
Dublin**

Architect:
Henry J Lyons

Linesight services:
Cost Management



Our culture

Our distinctive culture has always played a key role in our success.

We recognise that how we run our business, how we lead, how we communicate, and most importantly, the long-term and meaningful relationships that we build, have been critical to our success.

As we reflect upon our growth in recent years, our resilience in thriving through a global downturn, and our ability to identify and grasp global opportunities, it has become clear to us that it is our culture and our way of operating, that have made this possible.



Our **bold ambition, honesty and confidence to deliver**, together with our commitment to cultivating **meaningful relationships** is what sets us apart.

own and **empower**

We have a highly developed sense of responsibility for identifying problems, finding solutions and executing with excellence.

As individuals and teams, we are free (and encouraged) to exercise our judgement to reach our goals.



embrace **clarity**

Our emphasis is on direct communication - our preference is always face-to-face, or to pick up the phone. We express ourselves clearly, honestly and effectively in our communication. We are proactive in inviting and providing actionable feedback.



bold ambition

We continuously develop our global team, with a shared drive and ambition to deliver exceptional results.

We believe success is winning unreserved recommendations for exceptional work and impact. We always work with an eye on the future, whilst delivering on our commitments and objectives.



connect for good

We believe in mentoring as a way to strengthen and develop ourselves and provide the resources, environment and flexibility required.

We practice 'reverse mentoring' between junior and senior employees - every single person in Linesight has something to teach.



lead by example

We believe in mentoring as a way to strengthen and develop ourselves and provide the resources, environment and flexibility required. We practice 'reverse mentoring' between junior and senior employees - every single person in Linesight has something to teach.





**Edwards Lifesciences,
Limerick**

Architect:
Jacobs

Linesight services:
Cost Management, Project
Management, Health and
Safety Review

**Blackrock Oncology
Department, Dublin**

Architect:
Scott Tallon Walker

Linesight services:
Cost Management



Working with you, wherever you are

With staff located across Europe, MENA, Asia Pacific and the USA, our reach is truly global. We are delivering projects all over the world and are always exploring new areas of opportunity. We offer first-class consultancy on major projects across 13 specialist sectors, and we have developed a broad portfolio of innovative projects in every region.

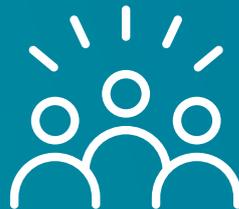
- Commercial Development
- Commercial Fit-Out
- Data Centres
- Education
- Food and Beverage
- Healthcare
- High-tech Industrial
- Hospitality
- Life Sciences
- Residential
- Retail
- Student Accommodation
- Transportation and Infrastructure



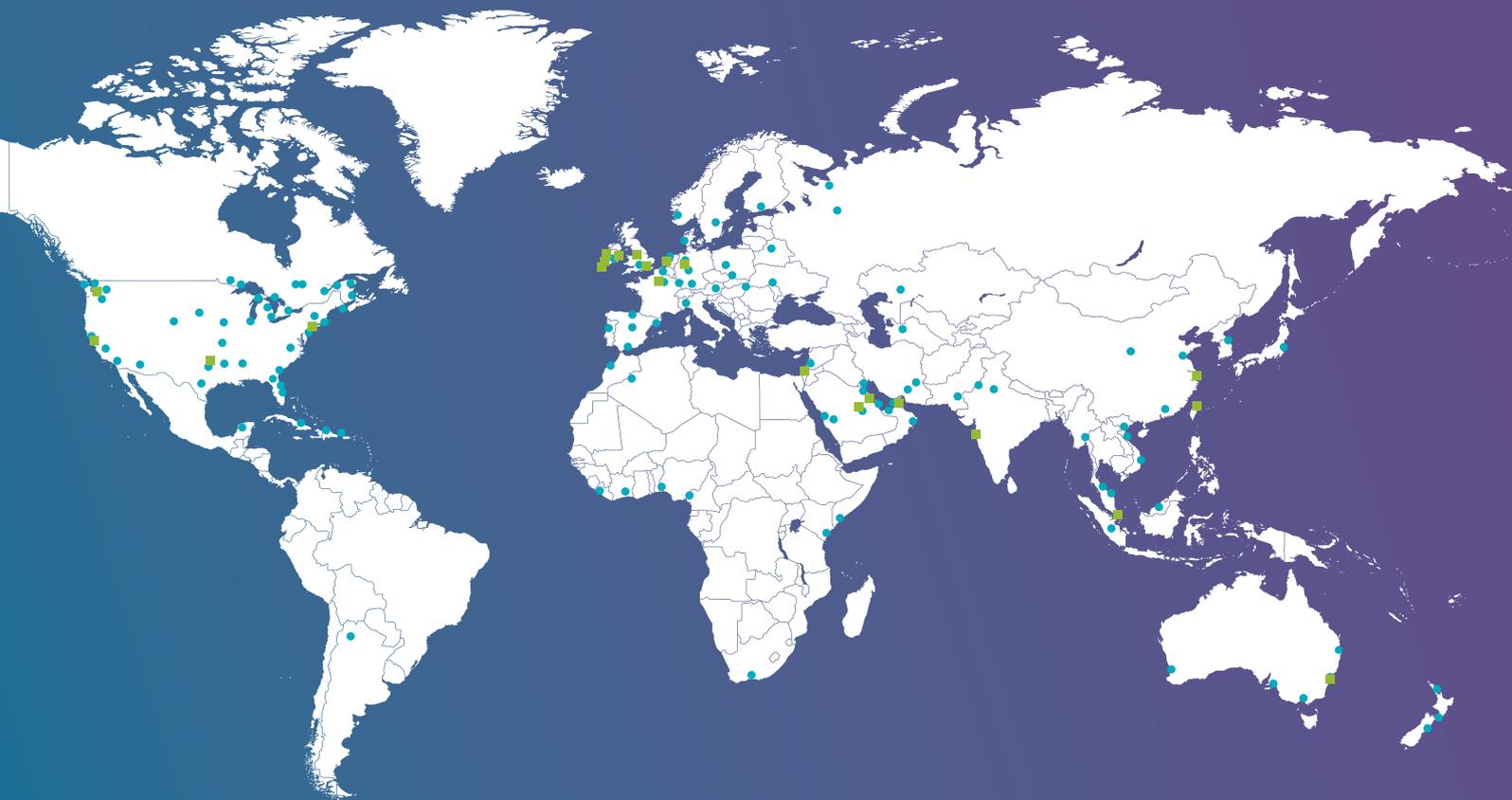
24
offices



50+
countries



850+
staff



EUROPE

Dublin

Hoban House
Haddington Road
Dublin 4
T: +353 1 661 4711

Limerick

Linesight House
6 Hartstonge Street
Limerick
T: +353 61 493 515

Cork

VHI House
70 South Mall
Cork
T: +353 21 4274 474

Galway

Unit 6
Racecourse Business Park
Ballybrit, Galway
T: +353 91 734 005

London

Ground floor,
48 Chancery Lane,
London, WC2A 1JF
T: +44 20 7784 7330

Manchester

Peter House
Oxford Street
Manchester M1 5AN
T: +44 161 618 1811

Paris

Linesight SAS
23 Rue d'Anjou
75008 Paris
T: +33 1 70 92 37 91

Dusseldorf

4th Floor
Königsallee 92A
40212 Dusseldorf
T: +49 211 5403 9615

The Hague

11th Floor
Koningin Julianaplein 10
2595 AA The Hague

Tel Aviv

Ramat Gan Atrium
18 Jabotinsky 2nd floor,
5250501
T: +972 3 754 1289

MENA

Bahrain

Building No 655
Road 3614
Al Seef Area
T: +973 17 746 892

Dubai

24th Floor - Office 2403
1 Lake Plaza Tower
PO Box 11497 Dubai
T: +971 4 432 3831

Riyadh

Office 503 5th Floor
Al Akariyah 1 Olaya
Street
Riyadh 14023
T: +971 55 615 6846

APAC

Singapore

150 Cecil Street
#05-01
Singapore 069543
T: +65 6801 4540

Shanghai

Unit 819 8F Building 2
No 1196 Century Avenue
Shanghai 200120 PRC
T: +86 21 6043 3695

Taipei

11F-5 No 162 Sec 4
Zhongxiao E Rd Da'an
Dist
Taipei City
106 Taiwan (ROC)
T: +886 906 179382

Sydney

Level 5
131 Macquarie Street
Sydney NSW 2000
T: +61 2 8278 9500

Melbourne

Office 06-112
L 6
152 Elizabeth Street
Melbourne VIC 3000
T: +61 410 713 569

Mumbai

Unit No 902
Maithili Signet
Sector 30A Vashi
Navi Mumbai 400705
T: +91 22 49766744

AMERICAS

New York

286 Madison Avenue
Suite 602
NY 10017
T: +1 646 802 9900

San Francisco

582 Market Street
Hobart Building
San Francisco CA 94104
T: +1 415 343 2434

Seattle

2018, 156th Ave NE
Suite 310, Bellevue
WA 98007
T: +1 425 748 5147

Dallas

3131 McKinney Avenue
Suite 710
Dallas
TX 75204
T: +1 214 793 9236

Philadelphia

Lansdale Business
Center
650 N Cannon Avenue
Lansdale PA 19446



**Offices at Camden Yard,
Dublin**

Architect:
Henry J Lyons

Linesight services:
Cost Management



Acknowledgements

A special thank you to all those involved in this year's publication.

Editorial team:

Derry Scully, Niall Greene, Peter McHale, Stephen Ashe, Alan Dunphy, Brian Donnellan, Claire O'Broin, Eamonn Trainor, Hazel O'Donnell and Niamh Moore.

Contributors:

- Aidan Walsh
- Barry Cusack
- Cathal Phelan
- Eoin Dunphy
- Gavin Flynn
- Giles Heather
- John O'Sullivan
- Michael Smyth
- Nigel Barnes
- Paul Butler
- Willie Aherne

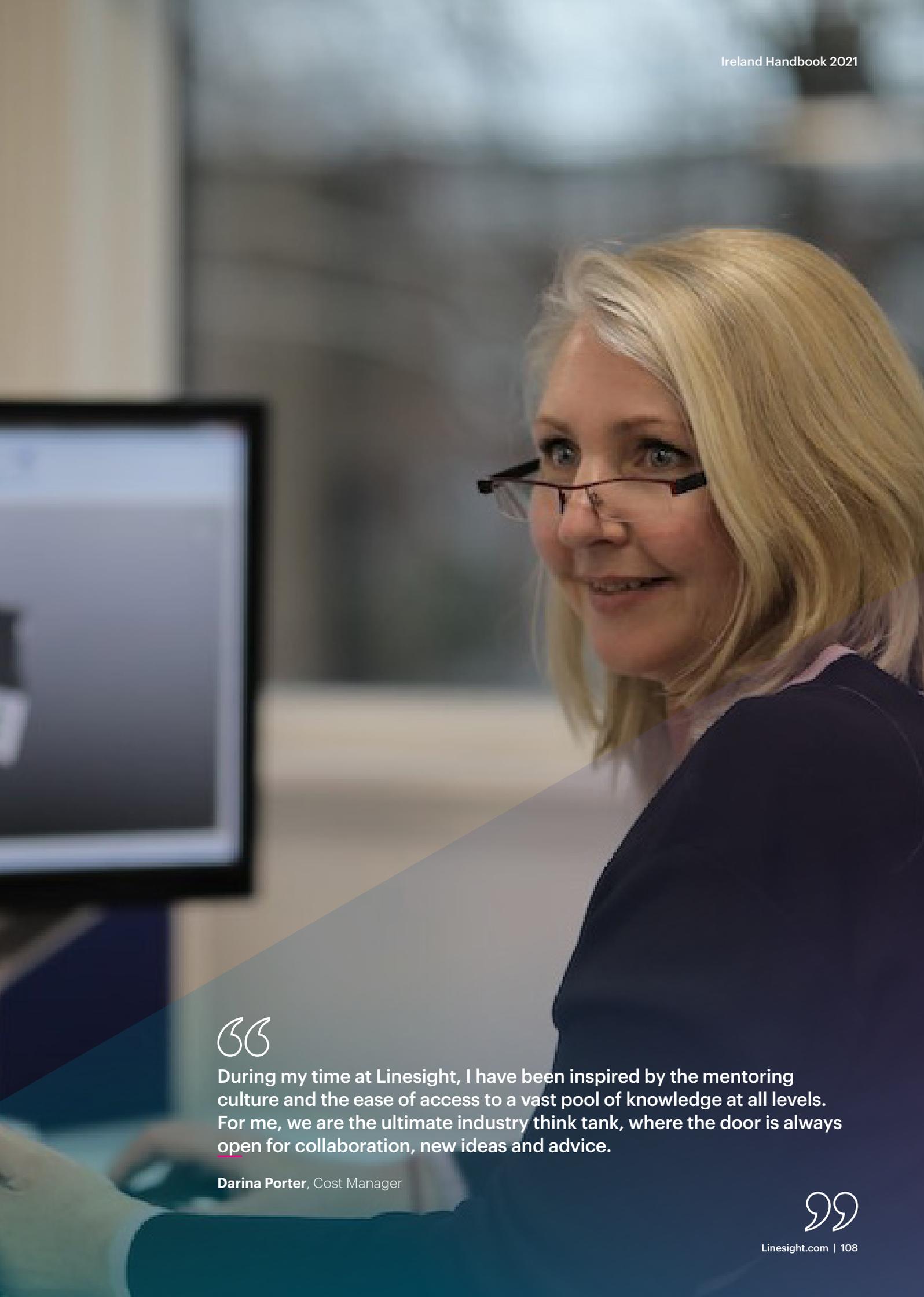


The Bottleworks, Dublin

Architect:
Henry J Lyons

Linesight services:
Cost Management





“

During my time at Linesight, I have been inspired by the mentoring culture and the ease of access to a vast pool of knowledge at all levels. For me, we are the ultimate industry think tank, where the door is always open for collaboration, new ideas and advice.

Darina Porter, Cost Manager

”

Cherry Lane, Cherrywood

Village, Dublin 18

Architect:
O'Mahony Pike

Linesight services:
Project Management

