Ireland's Data Hosting Industry

2018 Q4 update

"Irish Data Centres, an Industry of Substance"

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2018 Quarter Four Update

February 2019

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Foreword

2018 was a highly successful and eventful year for the data centre industry in Ireland.

By far the highlight of the year only came to light recently when the Dublin Metro Area was recognised as Europe's largest market for data centres by Jones Lang LaSalle (JLL)*, a global real estate advisory company and leading commentator on the data centre industry.

The report released by JLL in January of this year revealed that the Dublin Metro Area accounted for 25% of the overall European industry market share by year end 2018, with the nearest competitor London, recording a market share of 24%. A staggering achievement for Europe's "Data Isle" and a strong endorsement for Ireland's capability to supply the expertise, skills and overall regulatory environment needed to support the growth of the hosting industry.

The findings are in line with our own research conducted throughout the year tracking the state of the industry in Ireland and released quarterly.

16 new data centres became operational over the course of 2018 with a further 28 now in development, the highest number level of activity we've seen yet. There are now 53 data centres in Ireland with 'Hyperscales' accounting for 72% of the market.

Investment continues to rise in the sector with an impressive €1bn spent by hosting and cloud providers on construction alone in 2018 a number which is expected to rise to more than €1.3bn in 2019. In addition, an IDA report** highlighted that the hosting industry has created approximately 2,800 high quality, well remunerated roles in Ireland as of May 2018, a figure that is continuing to rise, in line with the growth of the industry.

It is becoming increasingly evident that Data Centres are an industry of real substance providing the Irish economy and companies with growing import and export opportunities.

The level of investment into Ireland from the hosting industry has brought about substantial opportunity for many Irish companies in recent years. Some have seen significant growth enabling them to export their skills and services across Europe, US and Asia. Ireland is now seen as a hosting industry leader, not due to the size of the market share we currently hold in Europe, but because of the hard work, skill and expertise built up by Irish companies and individuals in recent years which is now recognised internationally.

The accolade of Dublin being recognised as the largest data hosting cluster in Europe builds on over seven decades of foreign direct investment to the data industry. It is an achievement that collectively we should be proud of as it positions Ireland at the centre of innovation and a leader in a high growth industry.

We expect 2019 to bring continued growth as Ireland continues to build its reputation and Europe's "Data Isle".

Along with success come challenges and Ireland faces many of the same as those of other leading hosting locations around the world. The challenge of the creation, attraction and distribution of renewable energy remains a top priority for the industry with key stakeholders committed to further invest in renewable energy sources.

The industry also continues to strive in developing expertise through national universities that will see Ireland's competitiveness continue long into the future.

We look forward to another exciting year for the hosting industry in Ireland and continued success.

Garry Connolly

President & Founder - Host in Ireland

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* Jones Lang LaSalle: JLL EMEA Data Centre Q.4 2018 Market Review
** IDA in association with Grant Thornton: A study of the economic benefits of data centres investment in Ireland.

Content of this update - Q4 2018

Since the initial analysis of the data hosting industry in late 2017, we have seen steady growth and increased development plans. At the end of 2018, there were approximately three million square feet of data centre space in the Dublin Metro area. Indications are that this capacity will double in 4-5 years.

Our data is built on an analysis of almost 100 data centre buildings either constructed or in the pipeline. We apply industry metrics to estimate the cost of construction and capacity of these developments. As our model matures, and we understand more about the industry, we have been able to adjust our projections to fit with the latest available information. For each building, we assign a key investment year. Once a building is completed, we adjust the data to fit the reality. Given the large number of facilities, we have developed trust in our model.

We have identified growth in each of the clusters located around the Dublin Metro area. We have also looked at plans for regional developments, which are beginning to appear in planning applications.

For 2018, we estimate a total investment of over €1 Billion in the construction of data centres. This brings the investment to date in the industry to over €5 billion. This refers to construction of facilities and development of the power & cooling infrastructure to feed the buildings. It does not account for the investment in IT equipment within the white space, which would be significant. For 2019, we plan to explore development costs in more detail and to fine tune the model further.

In terms of capacity, the industry has grown from 420 MW across 41 facilities to 600 MW across 53 facilities in less than 18 months. The sixteen newest facilities span hyperscale, colocation and wholesale providers. Projected growth into the future includes eight new facilities currently in construction and a further 20 with planning approval.

Throughout 2018, we issued quarterly updates of the key metrics through our digital hosting dashboard. We provided in-depth articles on topics relevant to the industry such as power purchase agreements for renewable energy and district heating opportunities for data centres. In Q3 we looked at a decade of efficiency improvements in the data industry. We believe these reports will continue to provide a sound basis for policymakers and data centre operators. We welcome any suggestions for future updates.

David McAuley

Founder & CEO - Bitpower

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Data Market Developments in Q4 2018

Growth of the data hosting sector continued in 2018, with investment totalling €1 billion through the year. Each incumbent operator completed a new facility or received planning permission for future developments. New entrants to the Irish market also progressed plans through planning.

There are fifty-three data centres in Ireland, with 600 MW of grid-connected power capacity. The Dublin Metro area remains the focus.

While Hyperscale remains the dominant datacentre type, with 72% of capacity, the colocation wholesale market has grown from almost zero to 13% in the past 3 years.

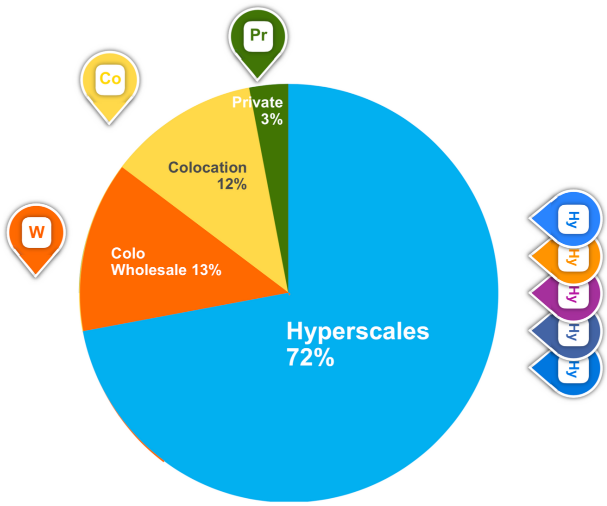

Figure 1 - Relative scale of digital hosting types in Ireland in 2018.

Private Data Centres

This sector accounts for smaller facilities providing connectivity and technical internet services including domain registration. It can also include high performance computing and other dedicated facilities. In 2018, the Office of Public Works commenced planning for a 7,000m^2 project to house public services data.

Hyperscale Data Centres

Facebook opened its facility in Clonee and announced further investment. **Google** announced plans for expansion in Dublin. **Microsoft** ramped up construction in Grange Castle. **Amazon Web Services** built new facilities in Clonshaugh and Tallaght and received planning approval for additional sites.

Colocation Wholesale

The trend in wholesale (or build-to-suit or single client data centres) continues. These facilities are in the 15 to 25 MW scale range.

EdgeConneX opened facilities in Grange Castle while planning permission was granted in October 2018 for two new buildings. **CyrusOne** announced a new campus in Grange Castle. Crag Digital (**Echelon**) received planning for a new development in Clondalkin. Their proposed Arklow facility is also at planning application stage, with a decision due in Q1 2019. The **K2 Datacentres** facility opened in Ballycoolin. The **Citywest Limited** proposed facility received planning permission in December.

Colocation Data Centres

Digital Realty completed a second facility at Profile Park. **Interxion** completed its fourth Dublin facility at Grange Castle. **Equinix** received planning for its fifth Dublin Facility. **Keppel DC** procured the DataPlex facility in Ballycoolin. **CIX** expanded in Cork.

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Q4 2018

Masterplans
Estimated
245 MW

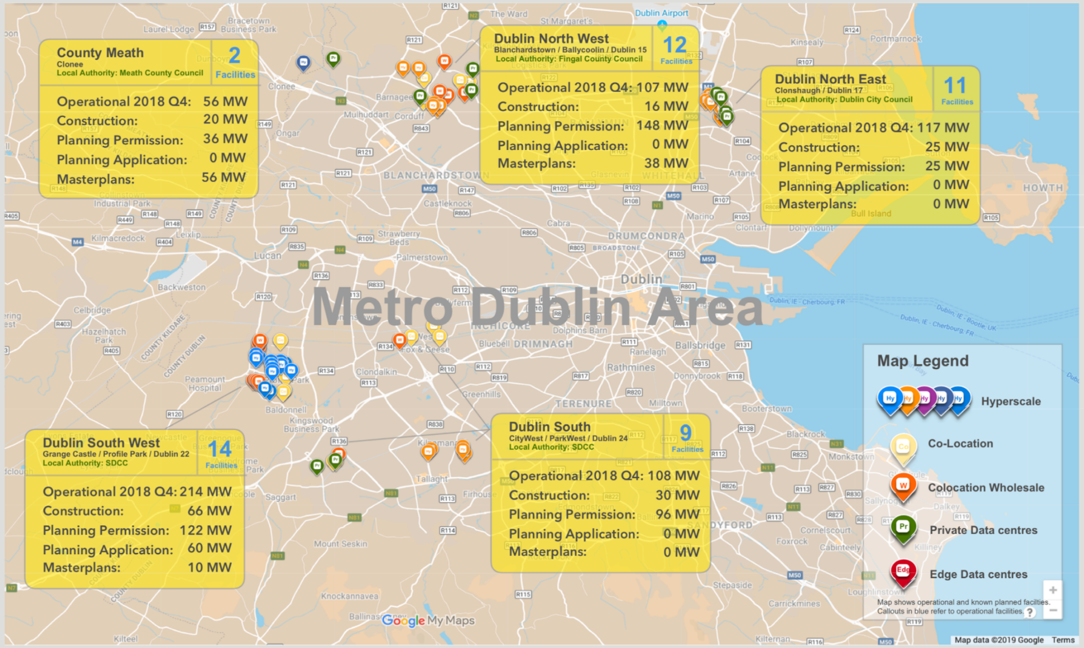
Planning Applications
Currently in the Planning Process
128 MW

Planning Permission
Approved
436 MW

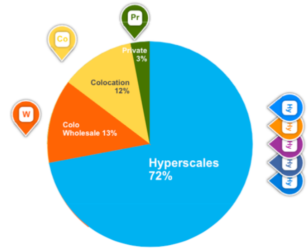
Construction
Projects currently in Development
172 MW

Data Centre Capacity
Operatonal in 2018 Q4
600 MW
Includes 20 MW Private

Digital Hosting Q4 2018 Update

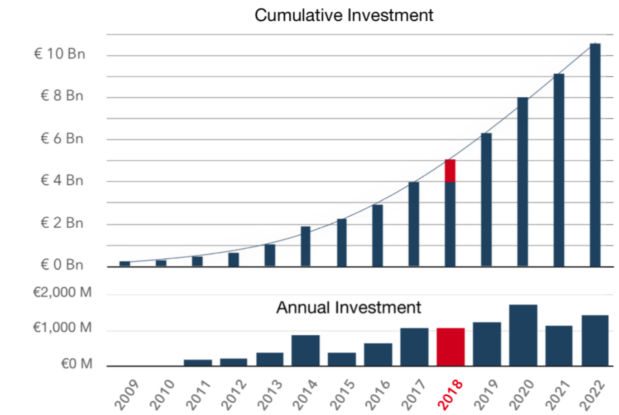


Data Centre Types
Operator business model



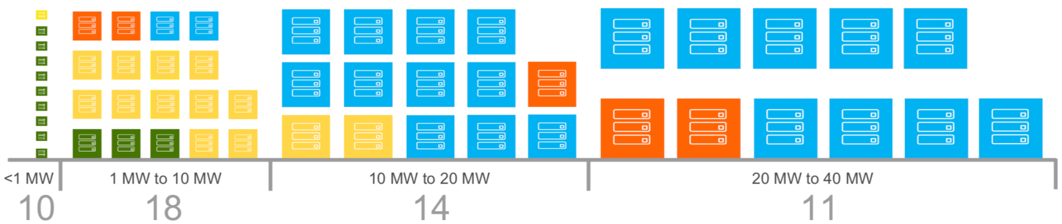
There were fifty-three data centre facilities in operation in Ireland by the end of 2018. Hyperscales continued to dominate in terms of scale, with 72% of the MW capacity. Colocation wholesale trend continues.

Construction Investment 2009 - 2022
Cumulative and Annual investments in data centre facilities



Ireland Hosts Commercial Data Centres of all Sizes
Fifty-Three operational data centres in Ireland by end Q4 2018

53



Highlights of 2018
The Big Picture

16
Newly Opened Data Facilities

16 new data halls completed since mid 2017

28
Facilities in Development

Under Construction or with approved planning

€1 Billion
Investment

In 2018, Over €1 Billion was invested in the construction of new facilities

580 MW
Cloud & Managed Services

Colocation, Wholesale, and Hyperscale Capacity

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About Host in Ireland

Host in Ireland is an award-winning strategic global initiative created to increase awareness of the benefits of hosting digital assets in Ireland as well as Irish companies that are designing, building, and operating data centres globally.

There are many benefits to hosting in Ireland- access to affordable power, redundant network and bandwidth capacity along with a variety of data centre providers that offer an array of services sustained by the “5 Ps”: Policy, People, Pedigree, Pipes, and Power.

On top of that is a very attractive business management structure, implemented by Ireland, which is keenly interested to bring new businesses into the market.

For more information about Host in Ireland, visit www.hostinireland.com.

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