

BIMireland

DIGITAL DESIGN | CONSTRUCTION | OPERATION

The third national survey to benchmark the level of Building Information Modelling (BIM) adoption in Ireland revealed a rise in the number of organisations that have been impacted by the UK mandate. 85% of the sample, compared to 66% in 2015, believe that Ireland should follow the UK's footsteps and mandate BIM. Current Client unawareness of the value proposition of BIM remains the top barrier for organisations.

The authors sought to report on the extent to which the digital transition of Ireland's construction sector has advanced since 2016. A survey questionnaire was selected for the collection of both quantitative and qualitative data. The 2015 and 2016 sample of Industry leaders operating in the construction sector were again selected to participate in the 2017 survey which has enabled trends to be analysed between both years.

As with previous years a sample size of 97 of the most influential leaders in Architecture, Engineering, Contracting were selected with the co-operation of the Association of Consulting Engineers of Ireland (ACEI), Construction Industry Federation (CIF), Society of Chartered Surveyors in Ireland (SCSI), Engineers Ireland and the Royal Institute of Architects in Ireland (RIAI).

The questionnaire was modelled on the Digital Transition Survey from 2015 and 2016 with additional options included to capture the advancements in BIM over the last year. A response rate of 42% was achieved which was slightly lower than last year. Table 1 opposite confirms the spread of the responses from different disciplines, which shows a good spread of representation.

Organisation Type	Nr
Architecture	8
Engineering Consultancy	9
Quantity Surveyors	5
Main contractor	7
Specialist Contractor	11
Total	40

Table 1 – Breakdown of Responses

What is your role with the company?

85% of respondents reported that their role was at Director/Principal/Associate level which was slightly lower than the 2016 results.

Has your business awareness and use of BIM advanced in the last twelve months?

64% of the sample reported that their awareness has improved significantly and are now using BIM on a number of projects. This represents an increase from last year which demonstrates the further growth of organisations in their BIM development. A further 28% reported that their awareness has slightly improved and are using BIM on some of their projects. Only 3% of the sample claim that their awareness has not changed.

Has the recent UK BIM mandate had any influence on your business process?

The number of organisations that have been impacted by the BIM UK has increased from 47% in 2016 to 53% in the last year. The rise in this figure could demonstrate that organisations are now seeing the UK Mandate come into full effect which is impacting their business model. When asked to elaborate on how the mandate has influenced their business processes, a number of salient points were discussed by the respondents.

Indirectly influenced due to some private clients taking elements of the Level 2 mandate and including them as deliverables. We have also used elements of the mandated processes and procedures implementing our processes whether a request has been made by the client or not.

It has affected us indirectly in that some of our private clients have taken on Level 2 BIM as a standard and we're finding that we're receiving tenders that are requiring us to meet that standard.

The majority of our projects are with UK Government bodies so it is compulsory to use.

In anticipation of a similar mandate here and based on client demand we have engaged fully with the BIM process and see it as a necessary step for the business.

It is becoming more common place for Clients to ask about BIM for their projects and they cite this mandate as a reason why they are looking into it.

The mandate has made us more aware of the importance of developing and maintaining internal standards, policies and procedures which we now use across multiple projects.

Following an initial practice-wide adoption of BIM from 2012-2013, as a practice, we have been solidifying our offering of BIM, to BIM Level 2, using the UK's mandate and procedures, as a substitute for an Irish equivalent. We have additionally used the mandate, for informing clients that using BIM is an incoming industry-standard, that will assist in the reduction of costs - both in the construction and operation of the built environment - and reduction of risk. Additionally, while our main client-sphere is Ireland, we wish to be BIM-export capable - and, towards this, we ensure to stay up-to-date with developments under the mandate.

While we work primarily in the private sector, the use of BIM in the UK and Ireland has greatly increased. The UK BIM mandate has provided a template that many companies are referencing.

How confident are you that both knowledge and skills in your organisation in respect to BIM have improved in the last twelve months?

76% of respondents indicated that they possessed confidence in respect to BIM knowledge and skills which is similar to the levels recorded in 2016. Those who reported no confidence in 2016 have dropped from 4% to 3%.. A number of key points were made by the respondents.

Team members across all disciplines involved in projects that have elements of BIM associated with them now expect an element of BIM in all projects, as they can see the benefits associated with its use.

We have actively engaged in training for staff and one of the directors is very actively involved with CITA and with the SCSi BIM committee.

External training has been employed not just on software but on specific BIM procedures and workflows.

We have hired 2 BIM modellers to work in the office and have started the process of becoming BIM enabled with a grant from Enterprise Ireland.

5 Project Managers are now implementing BIM processes and procedures on their projects. Skills in 3D modelling and clash review software are developing through constant use of same.

Having had an initial practice-wide adoption of BIM from 2012-2013, as a practice, we have been solidifying our offering of BIM, to BIM Level 2 comparability (undertaking projects to this level, in as much as can be delivered, in an Irish construction environment); we stay up to date on international BIM developments; have a number of Autodesk Accredited Revit Architects/Architectural Technologists; and have presented at a number of conferences and events, on BIM. We additionally operate a monthly internal 'BIM Research and Adoption' management group, to ensure that the most-up-to-date developments, and good practice procedures, are adopted, and integrated.

Which of the following standards/publications does your organisation use?

2016 has seen a greater adoption of publicly available standards/publications from the UK. This is to be expected as a large number of the sample are operating in the UK market. This again is evidence of the UK influence of the UK Mandate. The top 5 reported documents are shown in table 2 below.

BIM Standards/Publications	2016 (%)	2017 (%)
PAS 1192: 2 (2013)	50	66
BS 1192: 2007	43	53
CIC BIM Protocol	34	50
PAS 1193:3 (2014)	45	43
BS 1192-4	19	41
RIBA Plan of Work (2013)	43	41

Table 2 – BIM Standards/Publications

Which of the following challenges do you see as the most critical in achieving large scale adoption of BIM in Ireland?

Table 3 outlines the highest rated barriers, were a rating of 8 indicating the highest grade and 1 the lowest grade. The highest ranked concerns are consistent with 2016, these involve clients unawareness of the value proposition of BIM and implementing BIM within SMEs. A new barrier in 2017 included the absence presented of a public-sector mandate. The results show that there is still a strong requirement for training programmes to assist with improving Client industry understanding and awareness.

BIM Standards/Publications	Rank (2016)	Rank (2017)
Clients unaware of the value proposition.	1 st	6.9
Lack of public sector mandate	-	6.15
Implement BIM within smaller companies.	2 nd	5.32
A lack of BIM skills within current staff	4 th	5.0
Lack of guidance documents for professional.	-	4.38
Lack of standardised tools and protocols.	3 rd	4.35
Issues regarding data ownership and liability.	5 th	4.04
Uncertain legal environment for BIM to work.	6 th	3.45

Table 3 – BIM Barriers

Is your organisation experiencing an increased demand for BIM from clients in Ireland within the last twelve months?

The 2017 results show a slight decrease in organisations increasing a demand for BIM. 75% of respondents reported an increase in demand for BIM in Ireland, which is still significant. This figure demonstrates a continued demand in Ireland for BIM services in Ireland

Do you believe that the Irish Government should follow the UK in mandating BIM on public sector projects in the future?

An overwhelming total of 85% of the sample believe that Ireland should follow the UK footsteps and mandate BIM. This comparison demonstrates a significant rise from 66% in 2015. The lack of a public sector mandate is a key barrier going forward. Some of the key arguments for and against such a mandate are summarised below

An approach similar to Scotland or NI would be more appropriate.

I think the Government should follow but should work on adopting agreed standards for use across the industry.

A large majority of supplier firms to Government projects are SMEs. While some are adopting Level 2 BIM using their own initiative, many are not as it is not being asked for as a Client requirement. To attempt to avoid creating a 'two-speed industry', the government should make the use of Level 2 BIM mandatory on all public sector projects to give those companies 'lagging behind' in the adoption of BIM Level 2 a 'leg up' to level the playing field and provide a strong BIM-enabled industry in Ireland. If we don't help push all parties forward on their BIM journey, 'Level 2 and Level 3 BIM will just become a digital island in an analogue sea/industry.

The use of BIM provides added value to the overall project both during the construction and in the maintenance and operation phase following construction. In many cases the Clients are looking for some of these benefits, without fully appreciating how the process works. As a result, BIM is not working successfully on many Government projects. This is somewhat due to poor consultant advice in some cases. Government bodies need to develop clear standardised Employer Requirements for the BIM process that applies to all parties to the contract, rather than relying on the advice of individual project consultants at the start of a contract process.

The Public sector provides an example for the rest of the industry to follow.

I believe that mandating is too formal - the industry should be allowed to develop.

A further breakdown of the responses to this question is shown in Table 4 below. A number of respondents did not address this question.

Organisation Type	Nr of Responses	For	Against
Architecture	7	7	0
Engineering Consultancy	7	5	2
Quantity Surveyors	2	1	1
Main Contractor	4	4	0
Specialist Contractor	7	6	1
Total	27	23	4

Table 4 – Breakdown of responses in respect to an Irish BIM mandate

How best could the Irish Government encourage and support the transformational change to BIM for public sector projects

This question sought to understand what actions the Irish government should take to encourage and support transitional use of BIM on public sector projects. Table 5 outlines the highest rated enablers where a rating of 6 indicates the highest grade and 1 the lowest grade

BIM Standards/Publications	Rank (2016)	Rank (2017)
The development and dissemination of national guidelines to create and implement a collaborative environment that will foster the use of BIM.	3 rd	4.26
Funding from the Irish Government to implement the roadmap and ensure a sustainable approach is achieved.	1 st	4.13
Review current contract and procurement routes to ensure they are BIM ready.	2 nd	3.82
Review international standards and establish if they can be adopted within the Irish AEC.	4 th	3.65
Develop and roll out a National training programme for both the public and private sector.	5 th	3.50
Select and monitor pathfinder projects that will enable the transition to BIM and collaborative project delivery practices through pilot project Lack of standardised tools and protocols.	6 th	3.0

Table 5 – BIM enablers

The most significant enabler identified by the sample is the development and dissemination of national guidelines to create and implement a collaborative environment that will foster the use of BIM. This was ranked 3rd in 2016 but now registers as the most requested enabler to assist with the transition to BIM. Other high-ranking enablers, as similar to previous years, include funding from the Irish Government and a review of the current suite of GCCC contracts and the establishment of national guidelines. The need for pathfinders' projects received the lowest ranking with regards to support for the second year in a row.

Are you aware of the efforts of the Construction IT Alliance (CitA) in promoting BIM in Ireland and, in particular, the Enterprise Ireland promotional initiatives of the BIM Innovation Capability Programme (BICP) and the National BIM Council (NBC) of Ireland?

93% of respondents were aware of the efforts of CitA, BICP and NBC in promoting BIM in Ireland. With 85% of the sample representing a Director / Principal / Associate level it demonstrates that the work of these organisations are impacting at a high organisational level

Please provide any other thoughts you may have as to how Ireland should respond to the increased demand for BIM on Irish projects

The results to this open ended questions are summarised sector by sector in Table 6-10

Feedback from Architecture

Further support from government is required for training for staff and guidelines established to follow. All university courses for architectural and engineer should teach BIM and Revit.

The biggest roadblocks are: - Implementation at small practice level and Incorporation of M+E information by M+E design consultants.

Implementation of a 'fully considered' BIM Level 2 standard for Ireland as a main priority.

Ensure BIM subjects are incorporated into relevant 3rd level construction related technical and professional courses.

Client deliverables generate 'BIM targets'. Without required deliverables, BIM is an afterthought. A mandate would aid this as the private sector clients would then gain an understanding of the value potential of BIM.

Table 6 – Feedback from Architecture

Feedback from Engineering Consultancy

To attempt to avoid creating a 'two-speed industry', the use of BS1192:2007+A2:2016 processes and procedures including the use of a cloud-based CDE should be mandated on all public sector projects to enable all suppliers to become proficient at the foundation level of Level 1 BIM, while the discussions regarding mandating Level 2 BIM continue

Educate clients - focus on FM and construction savings - give clients a reason to want it.

Table 7 – Feedback from Engineering Consultancy

Feedback from Quantity Surveying

I believe the focus needs to be on the adoption of consistent and agreed standards and procedures

BIM is an excellent advance for the industry but we are not sold on the fact that smaller projects and companies may not have the money to use BIM.

Table 8– Feedback from Main QS.

Feedback from Specialist Contracting

Need to review specific EIR's being developed with clear focus on the end deliverable that the client actually needs. More training options needed on the use of COBie and the benefits of the asset information model post construction works.

Should be more phased approach. BIM requirements being specified in tender docs but the client not aware on how to actually implement, assess tenders and roll out in reality.

The biggest issue is Client driven as they do not want to pay for the service.

Table 9 – Feedback from Specialist Contractor

Feedback from Main Contracting

The response should be wholeheartedly open. BIM has proven to be beneficial in terms of the goals to be attained as set out in the UK BIM Mandate. Internationally BIM has been embraced by numerous countries and it is very hard to find negativity when studying the subject. The Irish construction industry cannot afford to fall behind in terms of knowledge and use of the subject matter.

It is widely viewed that the use of BIM provides overall savings to the project both in terms of cost and programme. This requires buy in from all parties to the contract from the inception of the project. It is imperative that clear, standardised Employer Requirements are for government project are established and applied to all projects over a designated value. This will ensure full engagement by design teams and contractors. Presently, the quality of the BIM process on government projects is mixed, and very much dependant on the quality of the Employers Information Requirements. On many projects the focus seems to be on the final deliverables for the later management of the asset, with little consideration to the design development and construction process. Thus, many of the overall project benefits are not being fully realised.

Table 10 – Feedback from Main Contracting

Conclusion

The feedback received by the different respondents continue to demonstrate the ongoing demand for BIM with the Irish AEC sector. The number of organisations that have been impacted by the BIM UK Mandate has increased which in turn has seen a significant rise in UK associated standards and workflows. The confidence in respect to BIM knowledge and skills remains strong which highlights that the market for BIM services remains consistent. A number of prevalent concerns continue to remain which include client's unawareness of the value proposition of BIM and implementing of BIM within SMEs. The vast majority of the sample have voiced their support for a mandate and have stated that such a movement, alongside the development and dissemination of national guidelines are the key enablers required to be addressed to further the growth of BIM within the industry.

These results are reflective on what has been a strong year for the industry on its BIM journey which began with the *Action Plan for Jobs 2017* requesting that the Office of Government Procurement and Enterprise Ireland to prepare a strategy for the adoption of BIM across the public capital programme. This has seen the release of the GCCC positional paper in March titled *A Public-Sector BIM Adoption Strategy* and the impending Roadmap for the Irish AEC Sector to be released in Q4 of this year by the NBC The Global Study and BIM in Ireland 2017 report compiled by the BICP Team has

also demonstrated Ireland's capability to not only collaborate in but positively contribute to international BIM jurisdictions. The results from the 2017 Digital Transition Survey have highlighted the key barriers and enablers that will be required to be addressed if this roadmap is to be successful.

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