

BIMireland

DIGITAL DESIGN | CONSTRUCTION | OPERATION

Executive Summary

The second national survey to benchmark the level of Building Information Modelling (BIM) adoption in Ireland revealed that 76% (67% 2015) of respondents possessed confidence in their organisation's BIM skills and knowledge. 79% of the sample also reported an increase in demand for BIM in Ireland.

Introduction

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

The same sample size of 97 of the most influential leaders in Architecture, Engineering and 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 with additional questions included to understand if the Level 2 UK mandate was having an influence on their business. A response rate of 59% 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	11
Engineering Consultancy	15
Quantity Surveyors	8
Main contractor	8
Specialist Contractor	14
Other	1
Total	57

Table 1 – Breakdown of responses

What was your role with the company?

90% of respondents reported that their role was at Director/Principal/Associate level.

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

57% of the sample reported that their awareness has improved significantly and are now using BIM on a number of projects. A further 33% reported that their awareness has slightly improved and are using BIM on some of their projects. Only 4% of the sample from last year claim that their awareness has not changed.

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

In 2015 the majority of respondents were acutely aware of the imminent mandate. However, surprisingly only 47% of respondents have stated that it has had an influence on their business. When asked to elaborate on how the mandate has influenced their business processes, a number of salient points were discussed by the respondents.

- The majority of our business is in the UK so we have had to adopt BIM since last year to get ready for 2016.
- 100% of our projects are now using BIM.
- Yes, we have strengthened the training, IT resources, and workflow/protocols which we already had in place, to streamline Level 2 equivalent output, which we had begun to work towards, before the mandate. It has additionally opened up insight into whether we would export our services abroad (though this enthusiasm was damaged by the outcome of Brexit).
- Yes, it has driven our clients which are sometimes engineers, architects & contractors to require 3D data which is our forte.
- It has provided a realisation that this is happening and in time Ireland will follow suit, as is gradually beginning to happen.
- The mandate has directly contributed to the development of certain specification documents and procedures that have proved useful in standardising internal workflows and protocols.
- Some of our work is UK based - this has been directly impacted by the mandate. We are using our developing skills to improve our service offering in Ireland as we believe the Irish industry will develop in a similar manner.
- Has resulted in public bodies requesting BIM as they see their counterparts in the UK using BIM.

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

The 67% of respondents who indicated that they possessed confidence in respect to BIM knowledge and skills in 2015, has now rose to 76%. Those who reported no confidence in 2015 have dropped from 6% to 4%. The remaining 20% were unsure if their general knowledge of BIM had improved. A number of key points were made by the respondents.

- We have developed a strong BIM leadership team over the past 12 months and invested in associated training

and software. We currently have 4 major projects operating BIM level 2 and are rolling out a programme for BIM implementation across the company.

- We have strengthened and refined an existing higher-than-average capability of BIM and IT resources, which had already been in place, since a practice-wide adoption earlier in 2013 - and have additionally this year seen the construction completion of the first public project in Ireland undertaken in BIM with services engineering.
- As BIM starts to become the norm, more emphasis is put on developing BIM capabilities. Put simply, to ignore it would lead to loss of work.
- BIM use and capability is growing month on month and we are successfully completing level 2 BIM projects.
- Running more projects in BIM and developing from detailed 'lessons learned' workshops.

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 many of the sample are operating in the UK market. The top 5 reported documents are shown in table 2 below.

BIM Standards/Publications	2015	2016
PA1192: 2 (2013)	33%	55%
PAS1192:3 (2014)	35%	45%
PAS1192: 2007	33%	43%
RIBA Plan of Work (2013)	22%	43%
CIC BIM Protocol	20%	35%

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, where a rating of 6 indicates the highest grade and 1 the lowest grade. The highest ranked concern, involved unawareness of

the value proposition of BIM. The remaining barriers were largely similarly ranked. The results show that there is still a strong requirement for training programmes and providing a cost analysis of the benefit of moving towards BIM processes. The respondents did not see cost as a particular barrier compared to 2015.

BIM Barriers	Rank
Clients unaware of the value proposition	5.38
Implement BIM within smaller companies	3.54
Lack of standardised tools and protocols	3.52
A lack of BIM skills within current staff	3.24
Issues regarding data ownership and liability	3.15
Uncertain legal environment for BIM to work	3.08

Table 3 – BIM Barriers

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

The 2016 results provided a slight increase in organisations reporting an increased demand for BIM. 80% of respondents reported an increase in demand for BIM in Ireland, which is significant. This figure demonstrates an ongoing and expanding market for BIM within Ireland.

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

A total of 66% of the sample believe that Ireland should follow the UK footsteps and mandate BIM. This is in comparison to the 50/50 breakdown in 2015. Some of the key arguments for and against are summarised in Table 4 and 5.

For

- We have seen the benefits of BIM from our experience in the UK.
- Yes - as it is (or should be) becoming industry standard, and so the tendering should have a level playing field in

terms of service. Additionally, the lifetime maintenance potential of a completed model, will benefit us in terms of construction costs, and environmental issues, etc.

- Steps should be taken by the Irish Government to promote the use of BIM technology and to standardise project workflows in delivering construction projects. However, careful consideration is needed in detailing specifics associated with FM integration and COBie requirements.
- Get in line with everyone else, just copy the UK.

Against

- No, because consultancy is still procured on Fixed Price Lump Sum which does not recognise value in later project stages.
- The BIM system is generally not up to the requirement for the civil engineering business and the software isn't there yet. Works somewhat OK for water and wastewater projects but software doesn't work as well as it is made out to work. Very expensive to implement and takes everybody in the organisation to buy into the system. Hard to justify the cost considering the amount of money that is involved currently to tender for all Irish Water projects.
- The industry is slow to change and needs proper leadership in order to implement change.
- 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.

Sector	Nr of responses	For	Against
Architecture	7	7	0
Engineering Consultancy	13	8	5
Quantity Surveyors	6	5	1
Main Contractor	4	1	3

Specialist Contractor	10	5	5
Other	1	1	0
Total	41	27	14

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 new 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 six indicates the highest grade and one the lowest grade.

BIM Enablers	Rank
Funding from the Irish Government to implement the road map and ensure a sustainable approach is achieved.	4.41
Review current contract and procurement routes to ensure that they are BIM ready	3.97
The development and dissemination of national guidelines to create and implement a collaborative environment that will foster the use of BIM	3.85
Review international standards and establish if they can be adopted within the Irish AEC	3.63
Develop and roll out a national training programme for both the public and private sector.	3.54
Select and monitor pathfinder projects that will enable the transition to BIMs and collaborative project delivery practices through pilot projects	2.86

Table 5: BIM enablers

Other high ranking enablers include a review of the current suite of GCCC contracts and the establishment of national guidelines. As seen in previous results, the high application rate of PAS 1192 standards show that respondents are looking to the UK for support in implanting BIM. The need for pathfinders' projects received the lowest ranking with regards to support.

How do you see the potential development of a road map for Ireland been led?

A total of 74% believe that any road map to be successful will lead to a joint Government and Industry initiative.

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 below.

Feedback from Architects

- *Implementation of a 'fully considered' BIM Level 2 standard for Ireland.*
- *I don't see what is different about Irish practice necessarily. The issue is that the many practices have been decimated by the recession and BIM is a significant investment which favours larger practices therefore making the pitch all the more difficult for smaller organisations. The government could provide assistance in the form of a grant aid for training but also public procurement could open up and not require 3 examples of a project completed with BIM. Once a practice has one project complete - doors are opened. The government could help with that first step.*
- *There is a lack of understanding of the advantages of using BIM, this needs to be addressed in a co-ordinated way by Industry-Government.*

Feedback from Engineering Consultancy

- *More information exported through agencies reflecting progress on BIM capability.*
- *IBIM has been used since the 1980s in the process industries here. Major Irish AE firms have substantial expertise and track record. Would be useful to leverage*

that knowledge and avoid the 'hype' from the BIM software vendors.

- *Educate Clients on what "value" means in a whole life sense, so that investment at design stage recognises BIM as a way to deliver in later stages.*
- *Ensure all colleges are training BIM in relevant courses - staff shortage will be a massive pinch point.*
- *The industry will meet any demand imposed by clients (public/private). Public procurement processes and cash flows do not facilitate incorporating BIM on public projects.*
- *Clients need to understand that implementing BIM results in the front loading of work for the design team which leads to savings on site during construction. Fees and Timelines need to reflect this front loading of work.*
- *Ensure contractors don't use BIM to abdicate their responsibilities for co-ordination of the works.*

Feedback from QS

- *The industry needs to get more involved and to embrace these important digital technologies, so as to streamline the information sharing process.*

Feedback from Main Contracting

- *We should follow the UK lead and give a timeline for when all Government contracts must be delivered through BIM, probably 2 years. Grants for training should be given to both companies and individuals to allow a swift upskilling, otherwise Irish contractors will be left behind its UK counterparts.*
- *BIM has been developed and worked well on building projects, but it is still limited in relation to civil engineering projects in general. The cost associated with setting up and implementing is expensive in both terms of man-hours, price. The cost is hard to justify given the current tender prices in the market being so low. The take up has been mixed in the UK to date. The software still has a long way to go.*

Feedback from Specialist Contracting

- *I think that there has to be a champion identified or*

placed in government to drive this and manage the relationship with the industry. This needs to be a person who sees the big picture with regards to BIM and that it doesn't just stop with buildings. I do think that Ireland is in a great position, given the profile of IT companies already set up in Ireland, to be a leader in the area of Smart Cities and BIM / Lean Construction process.

- *Ireland is already ahead of their UK counterparts with respect to BIM integration and the industry should use this as an opportunity to further improve digital utilisation across the sector. Engage with leading FM Irish companies to assist with finding practical solutions to post construction AIM management and COBie. Liaise with established BEMS/BMS firms with a view of leading the way by integrating front end building management software directly with BIM.*
- *The current contracts and procurement routes do not lend themselves to a collaborative way of working between all stakeholders. This needs to be addressed.*
- *There is a UK road map. The Irish government need to understand the value of BIM and not just apply a catch all expensive approach of passing full level 2 to contractors. List the LOD 400 or level 2 items to develop to the level that brings value.*

Conclusion

The feedback received by the groupings appears to demonstrate a growing maturity of BIM within the professional representative groups. The UK BIM Level 2 mandate has had an influence on a number of organisations which has seen an increase in demand for BIM in Ireland. There has also been an increase in respect to BIM knowledge and skills from 2015.

The impending Irish road map to be released in the first quarter of 2017 is a key milestone in Ireland's BIM journey. This road map will outline recommendations on contract and procurement routes, existing international standards and their suitability for the Irish AEC. The road map will call on the meaningful engagement between government and industry. The CitA BIM Innovation Awards in 2016 will greatly assist to showcase the maturity of the Irish sector with respect to BIM.

The ongoing BICP project will continue to capture the

capability of the Irish construction industry and the Higher Education Institutes to respond to the increased requirement for BIM on Irish construction and engineering projects. The outputs of the BICP will assist in informing the Irish road map both during its strategic briefing and mobilisation stages.

Acknowledgements

We would also like to thank 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) in selection of the sample.

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