

State of Readiness for a BIM Mandate: Survey

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1. Background

The Irish Construction Industry based on recent survey findings [1,2,3&4] would appear to have a high level of BIM adoption within the industry, with adoption figures remaining in the high 70 percentage range over the last number of years. Further to this, there is now an eclectic mix of resources in place to assist organisations in advancing their BIM journey, e.g. RIAI templates, Enterprise Ireland funding, Skillnet funded courses, etc. By all accounts, the Irish construction sector seems well placed to react to a government mandate. However, despite these encouraging findings, there is still no mandate, a lack of funding and barriers remain, such as low client demand and inadequate contractual frameworks.

To adequately understand the Irish construction industry's state of readiness for a BIM mandate, the authors conducted an extensive purpose-made survey that targeted a cross-section of the Irish AEC sector. The authors also took the opportunity to elicit sentiment concerning the current impact of COVID-19 allied to the continued relevance of digitalisation among Irish construction businesses in 2020 and beyond.

2. Methodology

The authors agreed that a targeted organisational approach would be the best method of ascertaining the state of the industry. In that regard, well-known professionals within an organisation who had specific responsibility for BIM were approached and asked to complete the survey for their company. Each survey participant was asked not to share the survey within their organisation so as not to weaken the sample, that is, to avoid repeat results from the same organisation. A total of 150 organisations were targeted across the Irish AEC sector, with a response rate of 41%.

3. Survey Analysis

3.1 Survey Breakdown

Out of the 62 organisations that responded, the largest discipline was architecture, (30%), followed by main contractor (15%), public sector employees (14%), sub-contractors (8%), building service engineers (6%) and structural engineers (5%). The rest of the sample consisted of building suppliers, quantity surveyors, consultants, and project managers. The breakdown of this sample regarding organisational size is illustrated in Figure 1. The vast majority of the sample worked in the East of Ireland (74%), with the next largest representatives from the Midlands (8%) and North West (5%).

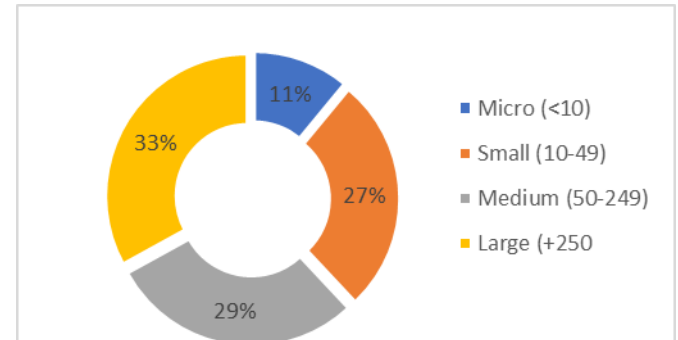


Figure 1: Size category of employer

3.2 Digital Readiness

Respondents were asked which category of digital readiness would best represent their employer's business, i.e., pioneers, advanced, mainstream, or late adopters (Figure 2). The highest category recorded was mainstream (35%), that is, that part of the majority of organisations in the construction industry who embrace digital technology within resource limitations but have an appropriate digital presence. Half of the respondents considered themselves either pioneers (26%), that is, recognised as digital leaders and drivers in the construction industry, or advanced

(24%), that is, having the resources to more easily embrace digital technology and can adapt their business strategy to suit changing demands. The pioneer sample was predominately split between architecture and main contractors. 11 % of the sample claimed to be late adopters.

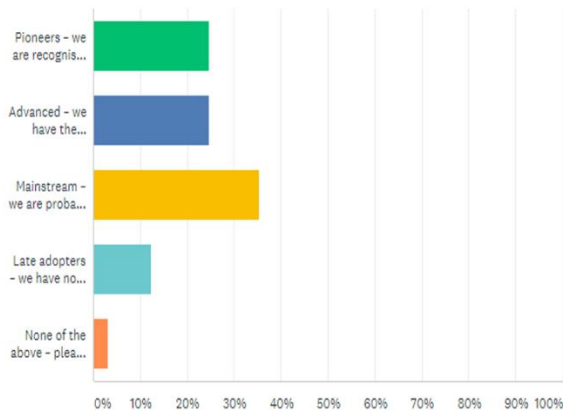


Figure 2: Digital readiness

When asked about their usage of BIM currently, 42% see it as strategically important to their business. A further 32% were aware and regularly used BIM, while 22% did not use BIM extensively. All organisations sizes have a large cohort that sees BIM as being of strategic importance and/or are using it extensively.

3.3 Standards and Funding

When asked if their business adopted any elements of the ISO 19650 standards, 73% said yes (Figure 3). As this is the internationally recognised standard for data management, it will, therefore, be a requirement if the government mandates BIM, which indicates that the survey sample is in a strong position to capitalise on this approach. Despite the perceived importance of standardisation, only 32% of the respondents have secured BIM certification in recent years. The most popular certification amongst the sample was the BSI Kitemark for BIM Level 2. Others mentioned were NSAI EN ISO 19650-2 and BRE BIM Level 2 Business Systems. Many respondents stated that though their organisation had not gained certification yet, many of their fellow employees secured individual qualifications, such as the RICS BIM

Manager or BRE Individual Certification, or are studying for a postgraduate qualification, such as TU Dublin's MSc in Applied BIM and Management.

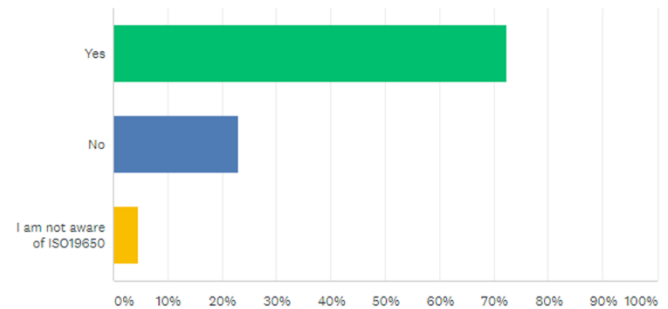


Figure 3: ISO19650 adoption

Only 17% of the sample had availed of any financial support from Enterprise Ireland under the "BIM Enable" or "BIM Implement" programmes in recent years. 28% of the organisations represented were unaware that this funding scheme existed.

3.4 BIM Mandate

When asked if a BIM mandate is needed on publicly funded projects, all of the sample selected yes. When asked to expand on their answers, the key themes that were evident were that a mandate would help to provide a standardised approach that would lead the industry towards a digital transformation. A mandate with specific guidance, templates, and contractual obligations would accelerate the levels of adoption within the industry. Responses show there is a concern that organisations are remaining noncommittal and, without a mandate, this position may not change. A further theme that emerged was that public sector clients have a responsibility to adopt digital technologies to meet energy and climate targets, maximise the use of Modern Methods of Construction (MMC) and provide a framework to allow the sector be more productive in doing business. Respondents were largely of the view that a public sector mandate would also assist in driving BIM usage throughout the private sector.

The respondents were asked what deficits, if any, need to be addressed before the introduction of a BIM mandate would be a practical proposition for Ireland.

A total of 52 organisations responded and a summary of the feedback is categorised under four headings:

- **Vision and Support:** The Irish government needs to communicate a clear and consistent requirement for BIM with a precise scope of works. This must be matched with resources and support for SMEs. This vision must be adequacy filtered down to County Councils.
- **Standards and Contracts:** The adoption of consistent standards and alignment of procurement frameworks to BIM processes are essential. These new contracts must embrace collaboration and integrated project delivery (IPD). Standards and guidelines should provide a focus on common data environments (CDE), asset requirements, legal protocols, object libraries and exchange information requirements. The adoption of ISO 19650 was strongly voiced as the preferred standard. The current suite of documents produced by the RIAI was also seen as a viable starting point for a standardised set of templates.
- **Financial Assistance for Hardware and Software Resources:** There must be a reduction in software cost or a contribution towards it. Grants for hardware costs and IT infrastructure must match BIM requirements.
- **Education and Training:** The training of public bodies in BIM awareness with a focus on client requirements is also vital. There was a consensus that if clients had a better understanding of the benefits of BIM, they would be more open to promoting it on projects. The upskilling of staff in both associated BIM software and processes is meshed with a call to empower BIM-ready staff to take a leadership role. This training will establish a greater awareness of digital workflows at early design stages which will help establish a collaborative and consistent approach to data management.

3.5 Post COVID 19 digital mindset

The final question sought to investigate if organisational attitudes towards the importance of digital technology and BIM has changed in light of

COVID-19. A total of 62% of the sample indicated that the current crisis had increased the value of digital technologies within their organisation. 60% of respondents who previously stated that they did not use BIM extensively now see digital technologies becoming a crucial part of their business model in the future. Many organisations stated that they already understood the critical importance of effective information management; however, with the arrival of the COVID-19 pandemic, this only served to accelerate their digital adoption plans. Some organisations noted that although there is an emphasis on digital technology, such as virtual meeting applications, there has been no significant push or advancements regarding BIM adoption, as some do not see the value in it. Other organisations who were not as advanced have now experienced the introduction of this technology that was previously deemed unnecessary. Upper management has witnessed how online working can enable more accessible remote communication with internal staff and external project participants. The collaborative nature of BIM has helped in this regard as it allows the team to understand the design intent more easily compared to traditional 2D drawing communications.

4. Conclusions

Organisations have shown resilience and are either accelerating their digital agenda or beginning to realise the significant benefits that digital tools can offer them. This, by default, has further positioned the industry to respond positively to a potential BIM mandate. Despite the findings of this survey, recent reports, such as the economic analysis of productivity in the Irish construction sector [5], highlight that a strong appetite to embrace technology advances is evident; however, there has been a low uptake of funding and training supports for technology and innovation development. The Construction Sector Group has outlined the need for the industry, particularly SMEs and small firms, to increase investment in innovation and technology to spur the next wave of growth based on a foundation of digital adoption [6]. The results from this survey further reinforce these findings and identify key actions that will be required to ensure a successful mandate. The

most critical factor for the mandate to be successful is adequate funding, with a focus on providing guidance and training resources for clients and SMEs.

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