

On behalf of the Office of Government Procurement who is co-ordinating this consultation process we thank you for taking the time to participate in this consultation on the development of a BIM Adoption Strategy for the Public Sector.

Please note that all responses received by the Office of Government Procurement will be published within one month of the deadline for receipt stated below.

Fields highlighted in yellow with bold text indicate a mandatory response, all others are at the discretion of the respondent. If mandatory fields are not completed the response may not be considered.

Responses to be emailed to [publicworkscontractsreview@per.gov.ie](mailto:publicworkscontractsreview@per.gov.ie) by close of business on **Thursday, 13 April 2017**.

### SECTION A – Respondent’s details

Name:	Construction Industry Federation. Email <a href="mailto:sdowney@cif.ie">sdowney@cif.ie</a>
<b>Select the sector title that best describes your area of work:</b>	Other The Construction Industry Federation has a number of sectoral associations that pursue the policy objectives of their sub-sector of the industry. The sectoral groups are divided into the following main areas: Master Builders & Contractors Association; Civil Engineering Contractors Association; Mechanical & Electrical Contractors Association; Irish Home Builders Association; Alliance of Specialist Contractors Associations; National Concrete Producers Association; Irish Contractors Plant Association.
<b>Indicate whether the views expressed are those of a business, organisation or are in a personal capacity:</b>	Organisation This submission is made by CIF on behalf of its members. The CIF is the licenced trade association for construction employers in Ireland, typically representing member companies that constitute 85% of the industry's overall turnover.
<b>Do you work in the public or private sector?</b>	Other Our members work in both the public and private sector

### SECTION B – Response to structured questions

<b>Q1.</b>	<b>Does your organisation already have BIM policies/protocols/procedures?</b>
In March 2017 in response to the GCCC Position Paper seeking participation in this consultation process, CIF conducted an all-member survey encompassing all branches and associations. Feedback from members who engaged with that survey indicates that the majority have BIM	

policies/protocols/procedures in place, albeit varying levels. Some have begun to implement BIM Level 2 on certain projects, with a view to roll it out across all projects. Other companies are BIM Level 2 certified and BRE listed and others have specified that their policies include a BIM strategic implementation plan and in-house manuals of BIM protocols & procedures for application by contract and project managers on BIM projects. A significant number of members did not engage in the request for feedback through our survey. Anecdotal evidence from general discussion at regular branch and association meetings would suggest that those members have not encountered the need for a requirement on projects to date and as such have no policy or procedures in place.

**Q2. Has your organisation invested in BIM software?**

Feedback from our members indicates that many have or are in the process of investing in BIM software including MEP and Architectural, Autodesk AEC Industry Collection (Revit & Navisworks) for 4D construction management, Buildsoft CUBI for 5D quantification and BIM Glue. Some members indicated that due to the high initial cost of software that they only invested in a piecemeal approach and that there can be difficulty in ensuring compatibility across various software platforms.

**Q3. Has your organisation a dedicated BIM manager?**

Some of our member companies have dedicated BIM managers, BIM co-ordinators or other BIM specific staff while others are in the process of assigning these roles within their companies. Some members indicated that they have appointed dedicated staff in the following roles depending on the scale of their operation and the stage of adoption they are currently at: BIM Manager; BIM Co-ordinator; BIM Technician; BIM Engineer; BIM Design Lead; BIM Detailer.

**Q4. Please outline the obstacles that exist to the successful adoption of BIM in your own organisation**

The obstacles to the successful adoption of BIM in member organisations, identified by those who engaged in the survey, are as follows:

Lack of consistent demand: Demand is not there yet to enable a full move to BIM capability.

Cost of infrastructure: The cost of investing in the necessary hardware and software without support is a concern, particularly for smaller companies.

High entry cost: It can be difficult to validate the use of BIM if it is only being assessed on a commercial ROI basis.

Upskilling staff: Allocation of time and resources to upskilling staff on BIM Protocols and Standards along with the introduction of BIM Software which involves a steep learning curve.

Need for standardisation: It is important to ensure that all parties understand the framework.

Culture: there is substantial education process required in relation to internal staff and that there is a difference between software and process. BIM should be viewed as a process workflow not just a tool. This is a key misrepresentation at both senior management level and middle management. At the early stages of adoption, the true benefits of utilising BIM were largely unknown with few examples of projects successfully completed utilising BIM. Many staff members could not see these benefits and held strong to traditional ways of working. Many project managers, construction managers, site supervisors and engineers are not currently bought into the idea that BIM produces a justifiable ROI for their projects and as such are highly resistant

to its use. Obviously legislation will make this set of arguments obsolete, but it would be better to have a set of costed case studies to support the notion that BIM is value for money and/or it brings such a range of advantages to a project as to outweigh its cost.

**Understanding training needs:** Companies will need to put a structured plan in place to deliver. Personnel need to be trained. This is not only a question of being able to use the software, but they must also have construction experience. A person that only has software experience will not design a practically constructible model. At the same time, it is difficult to get construction personnel to work in BIM, as the T/Cs are different. So finding the right combination of skills is very difficult. This problem is exacerbated by the fact that the number of these kinds of people available in the market does not meet the current need and this position is likely become worse before it gets better.

**Lack of existing skilled technical staff:** Sourcing individuals that had both knowledge of the different BIM software packages along with key construction knowledge was not an option to many companies as they did not exist.

**BIM IT Strategy:** Allocating time to staff members to identify appropriate BIM software and develop associated operational skills proved difficult.

**Filing structures:** It is important to ensure the correct processes are in place to implement BIM across the company, from filing structures to the creation of families etc., specific to projects we are working on.

**Workflows:** There is a need for key control measures to be put in place to ensure gate checks are being comprehensively completed so that workflows are not interrupted.

**Library of components:** There can be a general assumption that manufacturers have a developed component library offering files of 3D components or Revit families. In practice there is considerable variance depending on the supply sector. Detailing/developing BIM data down to component level adds significant expense/time to project delivery costs.

**Office to field transfer of information:** Issues can arise when installing technically complex elements on site with co-ordinates from the 3D BIM model. Protocols around data extraction are needed.

**Non-compliance from other parties:** Early adopters have found that they are pulling the rest of the team with them. If a significant party in the supply chain are not properly engaged then the process loses significant traction. Those that are early adopters are likely to win more business, and be in a better position to export services pre and post Brexit, but are equally likely to have to spend more to engage than those that arrive later to the party. Automation from 3D creates great efficiencies including time to create Bills of Measurement, clash detection, creation of ISOs, co-ordination of services, allows on-site viewing of 3D model, enables off-site manufacture and facilitates export of construction services.

**Q5. Please outline the obstacles that exist to the successful adoption of BIM in the construction sector**

The key response indicated a requirement for a structured framework including the process, responsibilities, standards and Level of Detail. Other obstacles to the successful adoption of BIM in the construction sector, identified by those who engaged in the survey, are as follows:

**Client input and understanding:** Clients must understand that their mandate, leadership, involvement and integration is required. BIM is a new resource and such requires a skill initial investment. While this may be an upfront cost there is an overall reduction in cost throughout the

construction and lifecycle stages if mapped out properly. Over time that initial cost will reduce as it becomes more of an internal process and company overhead. Clients must educate their staff and ensure what they understand 1) what they are asking for and 2) the process to deliver that.

**Collaboration:** As the transition to BIM is currently only taking place amongst a small percentage of projects, it is proving time consuming to create projects from scratch without the input of other disciplines (Architectural, Mech etc.). It is important that the party best able to manage the process is tasked with that function at each respective stage.

**Adoption of a common strategy:** All parties must adopt a common strategy and not BIM protocols to suit their existing organisation. It must be implemented at an early stage from the Client & Design Team to ensure VFM across the whole Project Team. The approach needs to be structured and standardised. There is currently no standard expectation as to what level of development a model should be at before the job goes to tender (e.g. LOD 200). Equally there is no agreement on the level of detail that should be provided by the contractors in respect of construction drawings (e.g. LOD 400). This can be dealt with if the constructor sets out a requirement that designs incoming to them are delivered at LOD 200 and output is delivered at LOD 400. The key is to define these elements when writing contracts. While teams developing BIM today create a set of methodologies for interacting with each other, during design, this set of interactions is different from project to project and/ non-existent in many cases. A set of “rules of engagement”, alongside a set of roles and responsibilities would be extremely useful in this regard.

**Lack of standards and protocols:** Clear direction is needed on what standards Ireland is adopting.

**Lack of BIM skills in 3rd level graduates & apprentices:** It is necessary to set the foundations of BIM fundamentals within the current education and apprenticeship systems. Possible option to work with the various 3rd level institutes across the country already incorporating construction relation courses to implement BIM knowledge into syllabus.

**Open BIM:** Encourage an “Open BIM” philosophy regarding software adoption. We need to highlight that different organisations have different workflows and are more efficient in utilising specific BIM software that is suited to their needs. Need to focus on IFC file formats for collaboration.

**Current FM organisations:** The true benefits of a BIM asset model post project completion are largely untested. BIM is currently used as a tool to assist construction for the majority of projects with traditional methods being used to handover Operation & maintenance literature. Leading Irish FM organisations need to be brought to the table to establish and document the benefits and opportunities associated with an Asset BIM 3D model. Possible option to develop Irish specific standard of COBie and review possibility of linking Front End building management systems directly with BIM. The end user almost never uses the model after construction is complete. So while BIM L3 has some idealistic value, we have not seen this realised in practice. As such, adding the cost of L3 may not produce an ROI to warrant its creation.

**BIM software:** While there is some convergence with regards to the particular software being used, there is still wide divergence between constructors; A&Es and customers as to exactly which systems to use. This makes information exchange difficult and can lead to even further expense in creating workable designs, not to mention making online interaction a major challenge.

**Definition of BIM Level 2:** There is a need for clarity as to what BIM Level 2 means in an Irish context. Without this definition, there are likely to be contractual problems in any project that states that BIM should be developed to level 2 or level 3 as there is no definition as to what this means.

**SECTION C – Response to Position Paper** – respondents may wish to provide the response to this section in a separate document, this should be attached with this response and sent to the email address above.

Topic 1 Introduction - See attached CIF submission document
Topic 2 Key Issues - See attached CIF submission document
Topic 3 National Standards and Protocols - See attached CIF submission document
Topic 4 Consideration for Smaller Projects and SMEs - See attached CIF submission document
Topic 5 Cost Implications - See attached CIF submission document
Topic 6 Education and Training - See attached CIF submission document
Topic 7 Procurement Model - See attached CIF submission document
Topic 8 (limited to 3000 characters)
Topic 9 (limited to 3000 characters)
Topic 10 (limited to 3000 characters)