

Welcoming Address

The debate was held in the centre of Bristol on Thursday 7th March 2013 and attended by over 60 professionals from the region.

The debate was introduced by the **Chair, Mike Murray**. A member of the Edge, Mike is a Chartered Engineer with 28 years experience in integrated Design Management and Construction, holding both a Bachelors degree in Building Services and a Doctorate in software simulation from Loughborough University.

Building Information Modelling is the hot topic this year so we brought together a panel of experts within their respective fields to discuss BIM and how it's already having an impact on our industry.

The debate focussed on how we as an industry can deliver collaborative Level 2 BIM by 2016. We know that the UK Government has embarked with industry on a four year programme for sector modernisation with the following key objective:

- reducing capital cost
- reducing the carbon burden from the construction and operation of the built environment by 20%.

Central to these ambitions is the adoption of information rich BIM technologies, process and collaborative behaviors that will unlock new, more efficient ways of working at all stages of the project life-cycle. <http://www.bimtaskgroup.org/>

The Panel

1. Steve Race – Construction Industry Council
2. Ben Roberts – MEP Consultant, Hoare Lea
3. Paddy Conaghan – CIBSE HQ BIM champion
4. Ronnie Rennoldson & Ashley Smith - CODA Architects RIBA

The Presentations

A short 10 minute presentation was given by each panel member demonstrating their views and experiences with BIM.

Steve Race – Constructing Industry Council

Steve started his presentation by looking at the different definitions of BIM and which was the right one. He made the observation that BIM wasn't:

- Just 3D CAD
- Just a new technology application
- Just the next generation, it's here and now!

He said the most useful description of BIM was 'openable sharable asset information'. It is a process of sharing information and hopefully improving communication.

He made the point that BIM isn't just a software programme (which we as an industry view it) but a collaboration of many different parties. In doing so he talked about the legal landscape and how it needs to change to incorporate BIM. There was much confusion at present as to who owns the model and who was responsible for it. The introduction of the COBIE & IFC standards has helped to define

these roles. He concluded by saying that perhaps education is the most important element not least education for the Professional embarking on the BIM journey.

Ben Roberts – MEP Design Consultant, Hoare Lea

Ben noted that the interface between the design team and the contractor was currently not as sophisticated as it needs to be. The 3D model containing a huge amount of information can be created by the design team which the contractor is currently unable to use to its full potential; typically turning the 3D model into 2D standard CAD drawings or redrawing 3D models from scratch. He suggested that progress in this transition can and needs to be improved.

He stressed that early involvement (RIBA stage A&B) by the M&E consultant was key, and that the sub-contractor should be involved from stage D to inform the design of installation requirements. He suggested that consultants should be informing the architect right at the start which is the most energy efficient orientation for the building (amongst other issues). He then went on to describe the MEP consultants role throughout the RIBA project stages and noted that the BIM model can be used for early space planning of plant through to producing detailed equipment schedules.

The model is great value for money as it can be used throughout the entire process of the project.

He noted the difference between the traditional project process and the collaborative process which was required to successfully implement and maximise the use of BIM. Essentially the collaborative

process involves much more overlap between the M&E consultant, M&E sub contractors and the facilities managers. He stated it was about clearly communicating and to some degree educating the aforementioned parties so that the design concept can be achieved at completion of the project. This greater collaborative approach did raise the question, who then becomes responsible and for which element of the design?

Paddy Conaghan – CIBSE BIM Champion

Paddy represents CIBSE and sits on the BIM group of which there are 70 members, the main purpose of the group is:

- To create a specification for MEP BIM content creation
- To advance BIM in UK MEP Practice

Paddy then went on to detail a real example of BIM for 20 FENCHURCH STREET – THE WALKIE TALKIE which used level 1 BIM. The outcome for using BIM level 1 (purely a 3D model, no embedded data) meant there were no clashes and no core drilling took place on site! But as the 3-D model provides the 'as fixed' records and links directly into the asset database, (thus fulfilling most of Government's aims for Level 2 BIM,) he asked the question 'So is BIM level 2 really needed?'

He then referenced the BIM guidance which New York had adopted. This stated that the client would own the model outright and exclusively including all inventions, ideas, designs and methods, without limitation on use or reuse. Clearly this moves away from intellectual property practice in the UK and any attempt to invoke

similar contracts here should be resisted by the construction community.

He then reviewed some of the difficulties faced by the MEP industry in presenting Level 2 data for MEP products in the format required on public sector work - COBie (Construction Operations Building Information Exchange). At present no manufacturer offered data in this format or its cut down version SPie (Specifiers' Properties Information Exchange), so the process of 'populating' data spreadsheets was laborious. Further, COBie and SPie focus on asset data and exclude product information that designers and contractors would find useful. Thus the CIBSE BIM Group had developed and trialled PDTs (Product Data Templates) to infill these 'gaps'. But the full scale roll out of PDTs was a huge task requiring cross-industry engagement driven by prime contractors into the supply chain. Other possibilities lay with NBS (National Building Specification) & putative formats like VDI 3805 and ISO 16757.

Thus while the MEP industry is an advanced user of Level 1 BIM, there is still a major challenge in moving it smoothly to Level 2.

Ronnie Rennoldson & Ashley Smith – CODA Architects (RIBA)

Ronnie introduced an example of how they had used 3D modelling in the past to effectively demonstrate the shape and form of a sculpture to the client. He noted that it is an excellent media of communication and that they had been doing this for a long time, having used BIM for a number of years.

He cited the example of Bristol Royal Infirmary which was a very large and complex building. As there are a number of BIM software platforms that could have been used, he noted that committing to a decision to use one platform early in the process was key. Revit was used for the hospital by all parties and the decision was made in 2008.

He noted that they were comfortable working at BIM level 2 and were working towards level 3.

As BIM is not just 3D design, this requires a cultural shift by all involved and summarised the issues to be addressed:

- Agreeing project protocols at the beginning of a project
- Change in internal management strategy to enable QA of model and team
- Intelligent authoring of element families
- Management of the co-ordination process
- Model accuracy
- Uptake by subcontractors to avoid revisiting co-ordination
- Copyright problems obstructing co-ordination process
- Late advice affecting base design decisions

He concluded that despite the level 2 BIM 2016 deadline, this cultural shift is still not evident in practice. Begging the question: 'Can our industry ever achieve Level 3 BIM?'

The Debate

(Following the Chatham House Rule, remarks from the floor are not attributed).

Q: CODA have been working with BIM, what is their experience with setting up BIM for the first time within the practice and the costs involved?

A: Start-up cost would be circa £10k for Revit software, licence and computer. It takes approximately 6months to train an operative so they are effective and can use BIM efficiently. It was noted that this is a considerable cost for smaller practices and that this could redefine the market place in terms of the number of practices which are compliant and able to tender for government projects.

Q: Is the traditional way of working outdated?

A: In response to the BIM requirement, RIBA are amending the RIBA design stages which is due to be released shortly. The stages will be reduced to circa 5 main stages rather than A-L.

Q: The presentations touched on different frameworks which could be adopted when using BIM. Has the panel had any experience on a method which has worked particularly well?

A: Mike Murray (chair); under healthcare projects the NEC3 contract has worked well as it encourages the design team to work together when there are the inherent building issues which arise.

Q: We have talked a lot about the design aspect but what about the facilities management side, how is BIM incorporated into this process?

A: Facilities management integration is still to be detailed by the government. The current guidance is fairly loose and there are no set targets for managing and monitoring handover. However Post Occupancy Evaluation is being driven by government and CIBSE are releasing TM99 to capture POE implications which is due to be released in May 2013.

S: We have covered that the culture within the design team has to be change, the client also needs to understand and perhaps be educated as well to ensure the process of BIM is fully utilised.

Q: The issues with collaboration are not new, how do we become as an industry better at this moving forward?

A: The panel suggested that due to the recession this has inherently made the industry more efficient. Its like the industry has been pushed into this rather than moving towards it willingly.

Q: Have the architects got to improve, in controlling the BIM process?

A: Ronnie responded by saying that most architects and indeed civil engineers have been using BIM for a number of years and have standard libraries in place. From his experience it appears that M&E consultants have ground to make up.

This was acknowledged by Ben Roberts who said that unlike the architects and civil engineers there was no standards library for M&E components and that creating one was considerably time consuming. He said that CIBSE should be investing in a standard approach and this would be beneficial to the BIM process going forward rather than each consultant having their own standard symbols.

Ronnie acknowledged that RIBA were taking more control of the process and this was reflected in the, soon to be released, updated RIBA stages.

Paddy suggested that there has been a significant amount of progress from CIBSE in putting the correct processes in place, but reaching the 70 odd trade associations to get their buy in was a real challenge. He was keen to see RIBA steer from the front as was the case before project managers were introduced.

Q: Galliford Try (contractor) – how are private clients going to be persuaded to use BIM?

A: Mike Murray (chair) responded that once the true potential from BIM has been achieved, i.e. 20% savings it will not take long for the private sector to follow.

Conclusion

BIM is not solely software for creating 3D models, it involves many disciplines within the professional construction industry to effectively benefit from the advantages that using BIM can offer.

There are many pitfalls to avoid when using BIM on a project, some of these are yet to be addressed and as the construction industry becomes more familiar with the process through experience, guidance will be updated to reflect these discoveries.

It was generally felt that achieving BIM Level 2 by 2016 was feasible although there would need to be a culture change within the industry.

To date BIM has only achieved savings in the order of 5% which is short of the government's target of 20%. It was felt that with time 20% could be achievable as there is a steep learning curve associated with the BIM process.

It was the general consensus within the room that CIBSE had made great inroads to setting up standard industry guidance, in agreement with all the other major institutes but further work was required to catch up with RIBA and RICS.

CIBSE EDGE DEBATE – Building Information Modelling

DELIVERING LEVEL 2 BIM by 2016



South West Region



L-R, Mike Murray (Chair), Steve Race (CIC), Ben Roberts (Hoare Lea MEP Consultant), Paddy Conaghan (CIBSE BIM Champion, Ashley Smith (Associate Director CODA architects), Ronnie Rennoldson (CODA architects).



BIM Edge Debate Audience.