

Mark Bew: BIM and the new need to focus on big data

For the last four years *Mark Bew* has driven the UK construction industry's ever accelerated adoption of Building Information Modelling (BIM) tools. He speaks to *Infrastructure Intelligence* editor *Antony Oliver* about the challenges facing the industry as it embraces a new digital world and moves towards the 2016 deadline for mandatory BIM on public projects.

Having chaired the development of the UK Government's BIM Strategy, published in July 2011 as part of the Government Construction Strategy, Mark Bew was handed the task of chairing the BIM Working Group which supports the BIM requirements set out in the Government Construction Strategy as published in July 2012.

Right now the industry is racing to get into shape ahead of the 2016 mandate for all public projects to have BIM at the heart of procurement design and delivery. That means working to influence change in culture as much as preparing critical documents such as the new BS 1192 BIM standard.

Has the industry moved beyond simply seeing BIM as a version of CAD towards an understanding that data is a resource?

Different sectors approach this issue in different ways and are at different stages of maturity. For example long term assets managers such as Network Rail or UK Power Networks understand that they have a massive amount invested in their assets and that their income relies on it working. But if you then look at developers or house-builders there is a different view largely because of the



length of time they retain those assets. So the drivers are different. But what we are seeing is that more people now see the value of data in understanding their assets. Some of this is driven by clients and some by an understanding of the market. One or two tier one contractors, for example, realise that the future world is likely to be very data centric and that the areas of innovation are likely to be around this rather than productivity.

To what extent is the adoption of BIM now accepted as less to do with technology and more to do with the industry's approach?

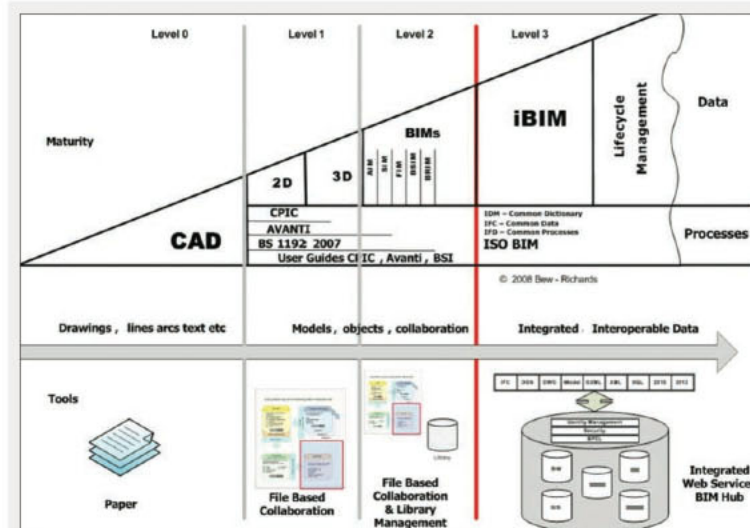
It is all about the industry – the technology is just a part of the supply chain – a valued part but still simply the supply chain. I think that we are going to see the geometry derived vendors such as Bentley and Autodesk really start to get their minds around data. We have got great geometry solutions but we haven't got such good data solutions in the way that manufacturing and aerospace has. We will no doubt start to see firms like Dassault, IBM, Siemens, Oracle, Google and Microsoft appearing in the market as we see a convergence and bigger suppliers acquiring the sector suppliers. Consolidation is what happens in the software market.

What can we learn from other industries?

There is a lot to learn. Data management and cyber security is completely cross sector. We have seen in the news recently how aircraft are constantly spilling out data and buildings are no different – the question is who is taking and using or misusing it. Cyber security is a big deal – one of the fastest growing sectors in the UK economy. We are part of that. Financial services, retail and construction are two big data generators so we have to share experiences. We would be bonkers to try to reinvent.

The 2016 deadline for public projects to embrace BIM is nearing – are we going to be ready?

I see many people working very hard but I see none saying this is impossible. We are half way and if you look at the evidence we have made progress since the early days of a few lines and a wedge shaped diagram. The whole understanding has been unpacked and we have consulted industry, government, operators and suppliers and come up with seven key documents – five of which are virtually complete and two of which are about to go to



Level Definitions

Level 0 - unmanaged CAD probably 2D, with paper (or electronic paper) as the most likely data exchange mechanism.

Level 1 - Managed CAD in 2 or 3D format using BS1192:2007 with a collaboration tool providing a common data environment, possibly some standard data structures and formats. Commercial data managed by stand alone finance and cost management packages with no integration.

Level 2 - Managed 3D environment held in separate discipline

"BIM" tools with attached data. Commercial data managed by an ERP. Integration on the basis of proprietary interfaces or bespoke middleware programme data could be regarded as "pBIM" (proprietary). The approach may utilise 4D and 5D cost elements as well as feed operational systems.

Level 3 - Fully open process and data integration enabled by "web services" compliant with the emerging IFC / IFD standards, managed by a collaborative model server. Could be regarded as iBIM or integrated BIM potentially employing concurrent engineering processes.

You are assisting HS2 with its BIM strategy – what have you found?

The BIM Task Group has amassed a set of experiences and we are sharing these with the HS2 team via workshops to help form their strategy and think through some of the problems. And to remind them that they are procuring data as well as asset. If you stand back from any network of assets the focus is income outgoings, and clients – the building bit is the inconvenient bit that you have to put up with to enable the rest. We need to do more focus on client outcomes and behaviour – the more we leave the specification of the technical assets to the supply chain the better. By comparison the Crossrail project was procured before the strategy was launched. High Speed 2 is very different – there we will have a complete data journey.

How do you describe the Government Soft Landings programme?

It is about involving the users that have to operate an asset in optimising the design. Having a better understanding of the asset being designed enables operational costs to be saved. If you can go to a VR room, for example, and actually see that you cannot access a valve or simulate emergency evacuations there is huge operational value.

What is driving the move beyond level 2 BIM?

If we are going to hit our carbon targets we are going to have to repurpose existing building not just build new ones. So we need to know what those building are, how they are performing and how we can repurpose them. We cannot get to some of these interesting debates without data and so that is where level 3 BIM is so important as a platform to build from. If you think that Level 4 is likely to be based entirely on social outcomes it gives you a clue about what we are trying to achieve.

We haven't yet got to grips with level 2 BIM yet you are now leading the roll out of level 3 – is that what the industry wants?

The earliest we will see anything from level 3 will be a strategy later this year. I am hoping that we end up with a very clear direction of travel by 2016 and then we will be looking to run early adopters from then on. There is no mandate about when that will appear – there may not even be a mandate, it may just be a logical extension of level 2. We are trying to move towards a digital economy as quickly as we can but not disadvantage SMEs – it is not about destabilising the industry but recognising that we need to maximise the use of data. As a public client we want to minimise the touch not maximise it. How little can we do to achieve an improvement.

If there is one thing that has to happen now what is it?

The most important thing is seeing level 2 through to a good level of maturity and capacity in the market and getting good collaboration with the guys working on level three. It is about growth data and consistency. Industry engagement is crucial – we have 33 BIM4 groups across the country. They are key. For level two it really has been about communication and capacity building and when it comes to SMEs the best person to talk to and influence is another SME.