



BIM, BIMs or SBIM?

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What's in a three or four letter acronym?

For the last three decades the construction industry has been awaiting the 'holy grail', the ability to coordinate the total project process and management through an object modelling environment that has been promised since CADD systems first appeared in the early 1970's.

Over that period we have been offered solutions that have been variably named 3D modelling systems, project modelling, single building models, single model environments, common data environments and now the latest of them all the Building Information Model (BIM).

There is much discussion in the industry over the use of emerging technologies and in particular the head of steam that is building for Building Information Modelling. Currently, the main thrust for the implementation of BIM working methodologies in the AEC industry is being generated by CAD software vendors who wish to capitalise on their BIM investment by providing the ability to produce 3D object oriented modelling systems that combine all attendant property sets and object attributes.

The question is do BIM's offer anything new in terms of better designs, better details, higher quality and increased profits?. The hype says YES but can this be achieved without a change in the business processes to allow it to happen or without achieving full interoperability between all BIM products.

The change in business process will need to cover most of the current activities in the delivery of the project namely:

1. Collaborative Contracts
2. Greater definition of the roles and responsibilities of the supply chain
3. Changes to the professional designers appointments
4. New processes for Construction Management
5. New processes for Contractors Design Management
6. New processes for the Contractors modelling needs
7. Full involvement of the manufacturers and fabricators at an early stage
8. Education and training for the construction team in process and enabling technologies

Change will also impact upon the traditional social and cultural habits of the staff and project teams and their resistance to change. The impact must be accepted and understood to ensure that the resultant 'blockers' that the culture will mobilise can be dealt with in as sympathetic a way as possible so that the vision may be realised.



Taking BIM to its ultimate conclusion the industry will have to change its dependence on the use of CAD, 3D or otherwise, in the delivery of a project. Project information, in the main part, comprises of alpha numeric data with drawings to instruct the trades in the construction and positioning of the building elements. In general, Production Information is made up of 10% drawings and models and 90% data. The data and drawings also need to be made available within secure, auditable IT systems that collect, manage and disseminates the correct information to the appropriate people at the appropriate time.

The idea of managing the project, the full lifecycle and Facilities Management requires the management of vast amounts of data that are more efficiently and effectively managed in a database and not in a 3D model. The model should be 'light' with related/relational data being entered and extracted by non CAD enabled users from the database product. This will also requires fast secured distributed access on a global network.

There is also a trend or discussion on the needs of the individual components of the supply chain.

The architectural BIM may need to be far more sophisticated than it is at present. The architects require software that allows them to explore ever more experimental forms of design solutions whilst checking the usability of the building through higher forms of analysis. The ability to morph a box into a creative building through the use of the technology is the visions. This puts us right back at the start of the use of the technology. Computers are basically rule based but the process of design is at some point without rules. This requires the man machine interface to be as flexible as possible to allow the capabilities and requirements of both to work together to provide a solution.

Structural engineers on the other hand are bound by rules and restrictions and are far more easily satisfied by analytical processes. The structural BIM and its associated software have been available for many years in reality; however there is a distinction between the designer and the 3D CAD modeler at present. Will the introduction of the more sophisticated structural engineering solutions remove the need for the technicians or CAD modelers and deliver a manufacturers model first time?

In the MEP industry we have an even greater polarization of roles between the designers analyzing building performance and the final design and the ductwork, pipework and electrical containment 3D modelers.

Will the needs of the individual produce even greater blockers, technologically and culturally, than we already have?

In fact there is even a debate on the development of the Constructors BIM that will need to combine all of the knowledge of the design systems but with the capability to remodel for construction process and planning, the composite model, the ultimate BIM. In The US there is a new publication entitled 'The Contractors Guide to BIM'.

Does the construction industry have the will to achieve a new business model?

Will we ever reach the 'grail' or continually quest for an absolute solution?