

Benefits of BIM

The BIM software results in correct representation of plans, elevations and sections, says Manu Malhotra, Director, RSMS Architects

BY TEAM HR

What are the benefits of using building information modeling or BIM?

At the onset, the term 'BIM Modeling' in current context is incorrect. The appropriate choice of words should be 'BIM-based approach'. The former refers to 'just a task' (for example a drafting exercise or just one step in a journey) and reflects the ignorance of the technology and its potential, but the latter refers to an 'approach to creating architectural solutions'. This concept is better understood by understanding the few following examples.

- BIM is creation of a visual database. This means it contains tangible items that are connected with the physical world. So the benefits extend much beyond 'just creation of construction documents'. The use extends to facility management, asset management, security planning, visual signages. The applications are endless.
- In a traditional setup i.e. using legacy 2D CAD based drafting software, significant amount time of time is spent on creating drawings that are correct representation of what is going to be built. But one needs to understand that no client pays an architect for doing a 'good quality drafting'. The client expects the architect to spend time working on the solution. The BIM software automatically results in correct representation of plans, elevations and sections. In short, BIM saves the architect a lot of time that can be spent wisely on adding value to architect's deliverables.
- BIM forces the architect to think in 3-D. Instead of being forced to assume that the double lines on plans are walls, BIM allows the architect to 'work with walls' and other similar building elements like col, beam, slabs, and equipment, etc. This means that focus is on 'building components' and not 'drafting'. This approach adds value to architectural services.
- The benefits can be summarised as the BIM model is a true representation of the building in the virtual world:
 - ▶ It can help an owner (representative) arrive at a decision;
 - ▶ It can be used to manage the contents (assets, equipment, spaces etc) of the building;
 - ▶ Assist the owner to manage changes over a period of time;



Which industries have been using BIM-based approach more regularly?

My experience suggest that in early days of 'BIM-based approach', the 'service intensive buildings' were the first to adopt and they are still trending ahead of other building types. In earlier days of 'BIM based approach', it was being used frequently to solve complex problems of 'basement coordination' since these were service intensive. These exercises were done in parallel to architectural and engineering services as independent service. However, this trend has changed significantly in progressive environments.

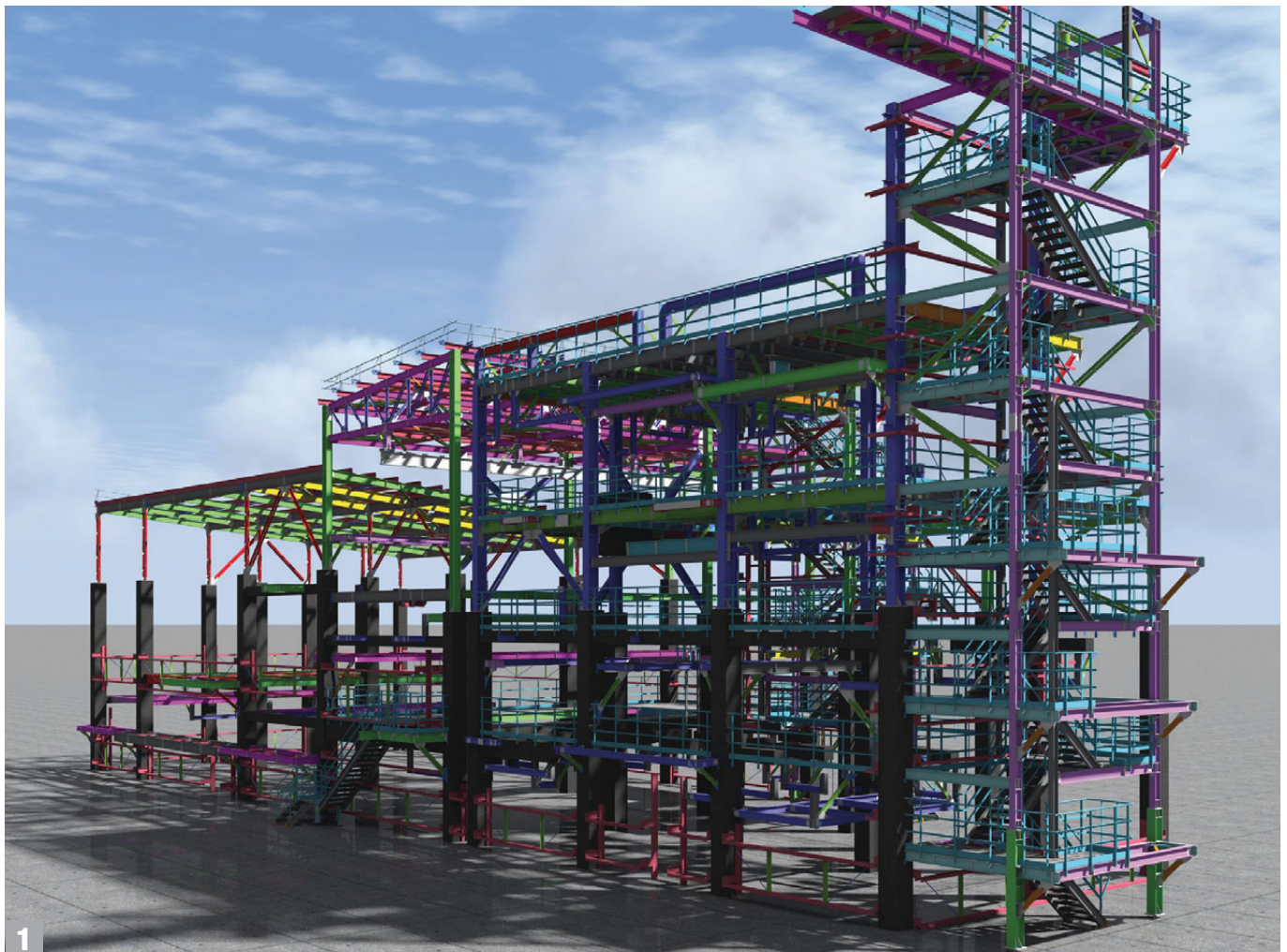
Presently I see an increasing adoption of this 'BIM-based approach', so right from

simple residential projects to hospitals and hotels, all the sectors are fast shifting to this approach. The reason I am noticing is that 'decision makers' recognise the benefits and realise that the efforts needed are worth the benefit this approach will bring with it.

With introduction of RERA, developers are finding the use of this technology useful and important. Taking the BIM-based approach, they are now enabled to validate the consultant (arch or engineering) provided solutions.

The progressive contractors are also among the increasing number of users of this approach. They now perform virtual construction to predict and identify

1. BIM approach allows the 'decision items' to be adequately visualised and staged in an understandable format.





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potential problems before their field staff encounter them.

What is the significance of using BIM based approach for hospital projects?

Significance at the pre construction stage:

- The significance can be understood by understanding the process of planning of hospital projects. After the owner has undertaken the study of 'medical need' (capacity, specialisation, etc) from a planner, the next logical step is to approach an architect with experience in hospitals. At this stage, the architect makes a scheme and shares it with the owner and seeks approval. Very frequently the owner's team (usually being doctors, head of nursing etc, including operations team) gives an approval without quite understanding the volume of space. They understand specific departmental needs, work flow

etc but are not able to visualise the space as a whole.

- However if at this stage, BIM approach allows the 'decision items' to be adequately visualised and staged in an understandable format, it allows the decision maker to move about in the virtual building and understand the space suitability, and then allows them to make a better and informed decision. This means that the hospital design that's implemented would not be a surprise to either the owner or the operation team.

Significance at the post construction stage:

- In international projects, one can very clearly see how the building is being managed in its operational phase. Owners have started realising the importance and value that a BIM based approach can bring. The significance is self-evident in subsequent answers.

2. BIM is creation of a visual database.

What are the benefits of BIM-based approach for hospital operations?

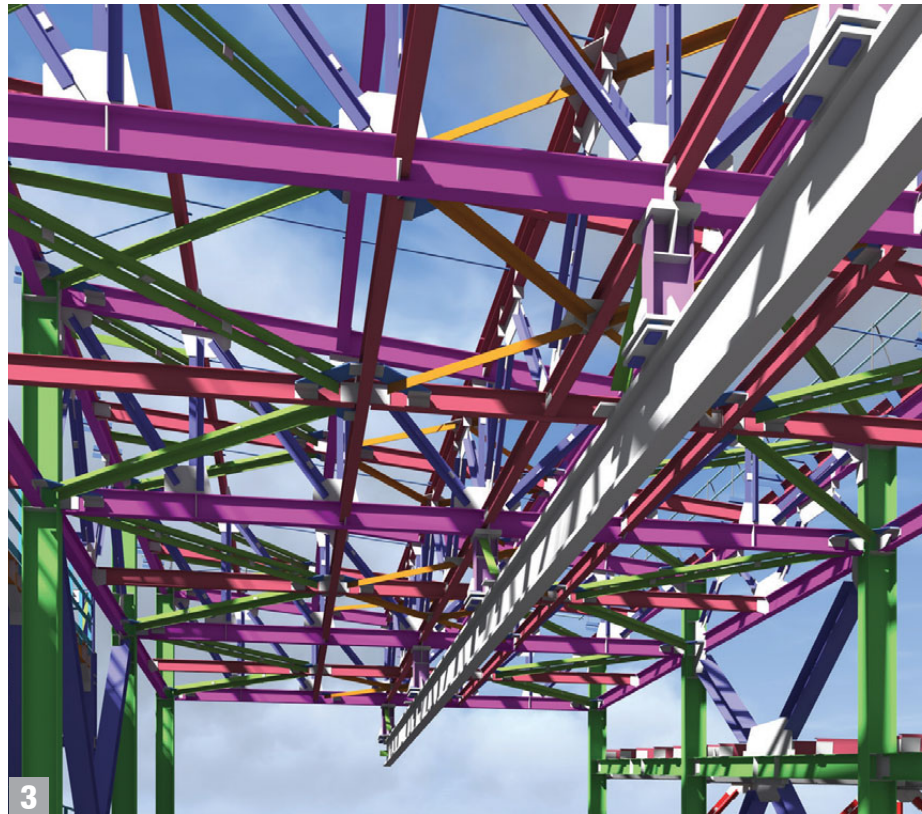
In current architectural services models, architectural services are not utilised in post-construction stage. So I have not experienced the BIM based approach in hospital operation. However, it's interesting to recognise that, in all conventional hospital operation models, the efficiency is shown to be only achieved by 'cost cutting' or 'finding cheaper alternatives'. However, the reason, in my opinion, is 'lack of control' of the operation. Owner/ hospital operators very rarely are able to take decisions due to lack of 'meaningful data'. Data is just not available. All this can change by integrating the BIM based approach with hospital management. More time is needed for this phenomenon to happen.

Additionally, one must also acknowledge another problem. Since such BIM based services are usually based on a manpower cost i.e. 'monthly fee model', it has not found acceptance in owner minds. But once the healthcare sector starts getting influenced by the new generation of owners, newer ideas will start gaining momentum.

Since when is BIM-based approach being used by Indian hospitals?

Adoption of BIM based approach in Indian hospitals is not very old. Adoption of this new approach started very slowly and still it has not picked up the expected pace. Reasons extend from 'resistance from within and consultants' to 'expensive software cost, change in licensing models' and even extends to 'low architectural fee'.

Doing a project completely in BIM most probably started happening around 2012-13. This was a few years after the slowdown in US had taken its toll. I am not sure of the exact date. However, we at RSMS, have been using the BIM-based approach to resolve conflicts among the engineering and architecture since early 2008-09.



Can you make some predictions about the use of BIM-based approach in healthcare?

Managing the hospital infrastructure would be the biggest use of BIM. This includes managing the physical infrastructure related to maintenance (security, painting, door hardware, etc, modification in departmental layout, remodeling of a department or creation of new department). BIM allows the data to remain in most relevant form and extend the room data beyond the construction stage to asset management. More progressive organisations would tag their equipment (portable or fixed) or assets with RFID tags. This will allow the managers to track hospital equipment and identify the physical location.

BIM (being a visual database) could probably be connected to other hospital database and used for 'operations'. For example, assigning consultants chambers, patient rooms and then integrating these with signage systems. 

3. BIM allows the architect to 'work with walls' and other similar building elements.