



India's 1<sup>st</sup> Digital Project Management Platform: 5D BIM Integrated with SAP ERP

**HIGHBAR**  
TECHNOCRAT

## Challenges in Mega Construction Projects



Cost Overrun



Time Overrun



Quality Adherence



Weak Document Management



Lack of Effective Asset Management

## 1st Integrated 5D BIM & ERP For Metro Project

Better Project Management Through 5D BIM

Visualise Real Metro Virtually

Convenience backed by Technology

Real Is Virtual Is Real

## Manage Projects Through 5D BIM + ERP

2D

Conventional CAD Drawings

3D

Visualisation through BIM Models & Object collaboration

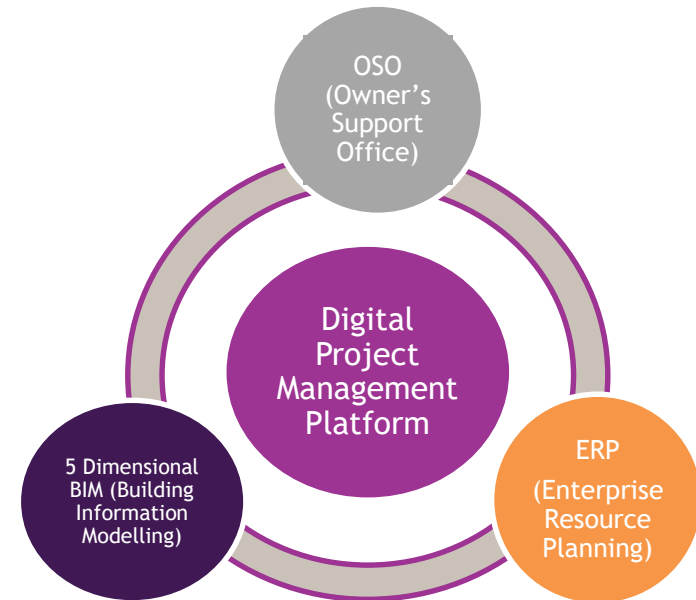
4D

Time progress on visual BIM model

5D

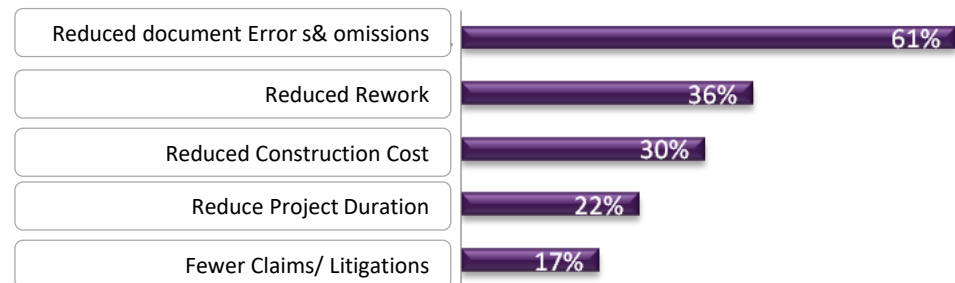
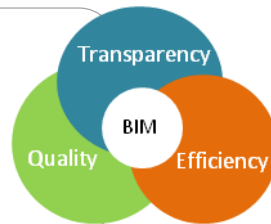
Cost Monitoring on visual BIM model

## Digital Project Management Platform



## Top business benefits of using BIM for construction project owners

- Improve Construction quality
- Significantly reduce lifecycle cost
- Better understand design projects end to end
- Optimize operational efficiencies & Increase use rate



( Source: McGraw Hill Construction, 2012 )

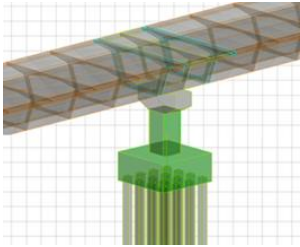
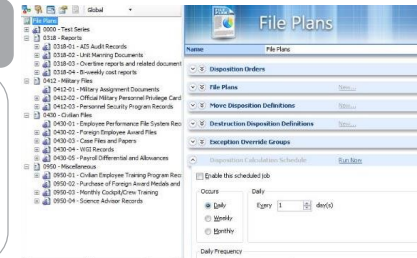
Activity Name	Start	Finish	Resource Name	Resource Type	Resource Units
Activity 1	2010-01-01	2010-01-31	Resource A	Human	1000
Activity 2	2010-01-01	2010-01-31	Resource B	Human	1000
Activity 3	2010-01-01	2010-01-31	Resource C	Human	1000

## Engineering Collaboration

- Usage of Collaborative platform for managing engineering design & drawings
- Platform will be used across eco system (NMRCL, DDC, GC, Contractor etc.)
- Establishing common understanding across stakeholders

## Asset Information Management

- Asset tagging with the models
- Track assets and sub assets
- Which can be further used during operation & maintenance phase

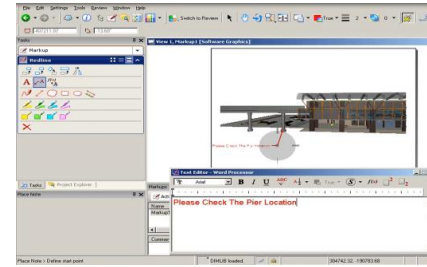


## Intelligent 3D Models

- Have additional information, Dimension, Coordinates, Volume etc.
- Information further utilized for processing

## Design Reviews

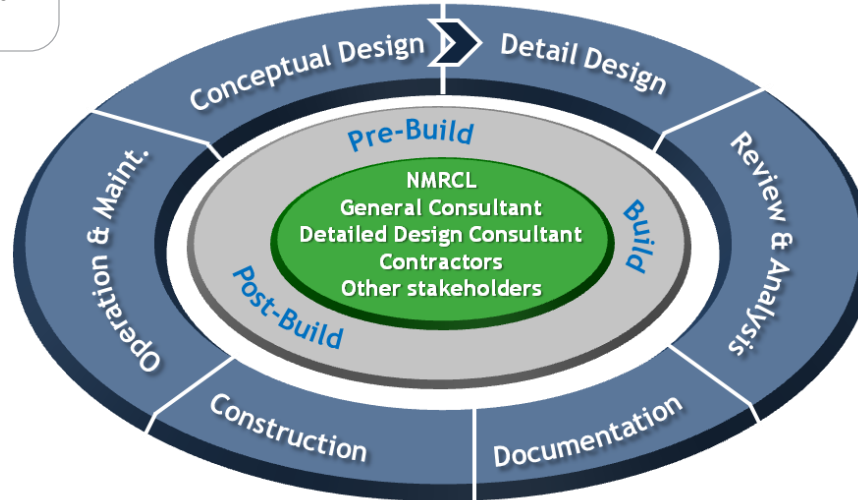
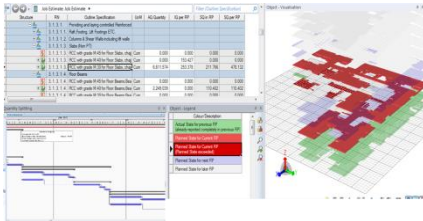
- Common platform for Design/Drawing
- Transmittal
- Review
- Approval



## Project Schedule 4D

Time dimension (4D) added to Intelligent 3D model - Primavera integration

- Project progress can be tracked live
- Monitor planned vs. actual progress

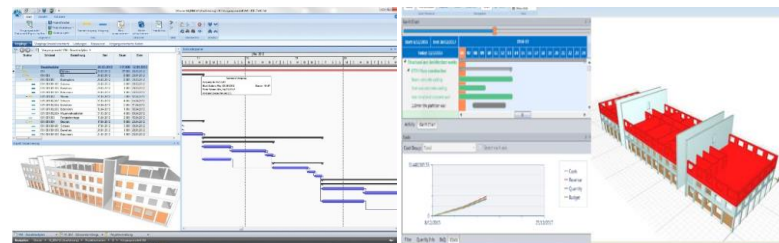


## Project Cost 5D

- Cost dimension (5D) added to Intelligent 3D model - SAP integration
- Monitor actual vs. estimated cost
- Simulate actual progress with cost

Item	Orig.bud.-Total	Supplement...	Cur.Bdgt-To...	Release-Total
UASTHAN ROAD R37	154,401,455	200,000	154,601,455	154,401,455
R37-7	154,401,455	200,000	154,601,455	154,401,455
ROADS	6,300,000	0	6,300,000	6,300,000
BRIDGES/UNP/RWALL/FL	88,065,791	0	88,065,791	88,065,791
CULVERTS & DRAINS	54,620,915	0	54,620,915	54,620,915
Others	326,000	100,000	426,000	326,000
Other Miscellaneous	330,000	100,000	430,000	330,000
MISC ITEMS	3,423,750	0	3,423,750	3,423,750
see tabularly thru uspen	1,334,998	0	1,334,998	1,334,998

## Integrated 5D BIM



## Digital Platform: Adding Value at every stage

Design & Planning

Execution & Monitoring

Operation & Maintenance

- Easy collaboration environment minimizes coordination efforts
- Dynamic allocation of reviewers
- Maintain intelligent information (Graphical & Non-Graphical)
- Clash detection & conflict resolution
- Reports to help minimize delays in review of drawings
- Customizable dashboards to monitor design & drawings management

- 5D simulation & visualization
- Office automation
- Change order management to track variation in quantities, change of materials.
- Single platform for enterprise level reporting
- Repository of construction phase data to act as reference during O&M phase

- Timely & cost effective
- Maintenance processes
- Asset information management
- Maintenance Dashboards
- Efficient asset management

Overall Benefits

- Engineering practices combined with project management practice
- Single source of truth to avoid duplication
- Highest level of visibility in megaprojects
- Reduction in lifecycle cost
- Faster delivery of project with highest quality

### About Highbar Technocrat Limited

Highbar Technocrat Limited is a leading end-to-end IT solution provider with its portfolio of enterprise business solutions, line of business IT solutions, process consulting & IT Infrastructure services aiming at increasing efficiencies for the infrastructure industry. IT expertise backed by industry domain knowledge differentiates Highbar as preferred partner for IT initiatives for infrastructure industry. Highbar has developed SAP certified templates based on industry best practices enabling customers to achieve business efficiencies. Highbar is now offering IT services across multiple sectors like manufacturing, BPO, Agro-Chemicals, Telecom, Consumer Products, Pre-engineered Buildings etc. Highbar is a preferred partner for SAP implementation & re-implementation with eleven global case studies.

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## Metro Case Study: India's First Linear Mega Project using 5D BIM integrated with ERP



Integrated 5D BIM: Designed and managed by Owner's Support Office (OSO)

Design	Define	Manage
<ul style="list-style-type: none"> <li>• Business Process Re-Engineering</li> <li>• Project Charter</li> <li>• To be Processes</li> <li>• Functional Requirement Specs</li> </ul>	<ul style="list-style-type: none"> <li>• Organization Structure</li> <li>• Digital Project Strategy</li> <li>• Training need assessment &amp; capacity building plan</li> <li>• Policies &amp; Procedures</li> <li>• Performance measurement model</li> </ul>	<ul style="list-style-type: none"> <li>• Implementation of 5D BIM &amp; ERP</li> <li>• Centre of Excellence</li> <li>• Timely data entry and data discipline issues</li> </ul>
Conduct	Report	  
<ul style="list-style-type: none"> <li>• Change management workshop</li> <li>• Training</li> <li>• Handholding</li> <li>• User acceptance test</li> </ul>	<ul style="list-style-type: none"> <li>• Status Update</li> <li>• Usage</li> <li>• Outcome</li> <li>• Conflict</li> <li>• Risk &amp; investment safeguarding</li> </ul>	