Nagpur Metro Rail Corporation Limited (NMRCL) is a Special Purpose Vehicle created for the smooth implementation and operations of the Nagpur Metro Rail Project and is a joint venture of Government of India & Government of Maharashtra, with 50:50 equity. NMRCL is solely responsible for the successful and timely completion of the project & its operations subsequently. Nagpur Metro Rail Corporation Limited is incorporated by Govt. of India- Ministry of Corporate affairs on 18th February 2015.

Headquarter
Nagpur, India

Founded
2015

Industry
Public transport

Products & Services
Nagpur Metro & Pune Metro

Website
http://www.metrorailnagpur.com/

**Project Overview**

**Nagpur Metro Rail Project**

Nagpur is located at the exact center of the Indian peninsula. Nagpur is the third largest city in the state of Maharashtra. However, only 10% of the population in Nagpur use public transports and 80% use two wheelers.

Nagpur Metro Rail Project is an under construction rapid transit system to tackle major issues like traffic congestion and road accidents. Construction on the project began on 31 May 2015, with trial run began on 30th September 2017 and an anticipated partial commercial operation on line 1 in January 2018.

<table>
<thead>
<tr>
<th>Alignment</th>
<th>Corridor</th>
<th>Rail Length</th>
<th>No of Stations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>North – South Corridor</td>
<td>22.293 Km</td>
<td>20</td>
</tr>
<tr>
<td>2</td>
<td>East – West Corridor</td>
<td>19.407 Km</td>
<td>20</td>
</tr>
</tbody>
</table>

- 38.215 Km in length; 40 Stations
- 48 months of construction phase
- Total investment: USD 1.4 Billion
- USD 18 Million (1.3%) spent on digitization with nearly 50+ major consultants / contractors on board
Challenge

Cost overruns and delays are major issues of infrastructure projects in India, impacting the delivery of projects and resulting in lots of inconvenience to the ultimate users. The major reasons for cost and time overruns include land/site handover, delay in regulatory approvals, contractual disputes, design/scope change, coordination issues within stakeholders, material price escalations beyond projections and connectivity of project site. The railway industry is the most affected one compared to the other industries.

To address the issue of cost and time overruns, weak documentation, and operational and legal challenges and disputes, and to instill the smooth transfer of data through the Operations and Maintenance phase, and to ensure that various interdependent disciplines involved in the project all work together, Nagpur Metro has built the innovation digital management solution for smoother transition to the O&M phase.

Solution

Digital project management with iTWO being the central platform.

For the digital project management solution, Nagpur Metro is using world renowned software. iTWO being the central platform has integration with all these software, so that the team can see all project data in a single platform – iTWO.

iTWO integrates 5D BIM simulation. iTWO provides an integrated view of the project by linking 3D model, schedule and cost. This supports timely rectification of the flaws in construction sequencing or schedule by contractors. By comparing planned and actual cost, NMRCL can foresee variations and have tighter control of the cost.

The team set up a “war room” to constantly monitor the project progress:

- Monitor execution of project closely, identify probable bottlenecks and take necessary steps accordingly;
- Gather vital information from various stakeholders in one place;
- Communicate accurate and timely information with key decision makers.

Outcomes

- Collaborative & user-friendly working environment.
- 3D model based analysis from concept till commissioning.
- Effective Project Controlling & Monitoring System.
- 5D BIM platform enables smoother implementation of work and transparency.
- Complete cost accounting system.
- “Knowledgebase” for future metro projects in India.

iTWO supports model-based progress analysis. The actual execution progress is visualized and tracked in 3D models, which contributes to wise work planning.

iTWO integrates the 3 other software systems being adopted by the NMRCL team and serves as the enterprise reporting platform. It is the single platform for all the data in project management, which is vital for accurate communication among stakeholders for effective decision-making.

iTWO is integrating all these and giving us the picture on our dashboard at one place, giving us a very good control on the cost, time and getting the information in depth wherever we are.

-Dr. Brijesh Dixit
Managing Director, Maharashtra Metro Rail Corporation Ltd.