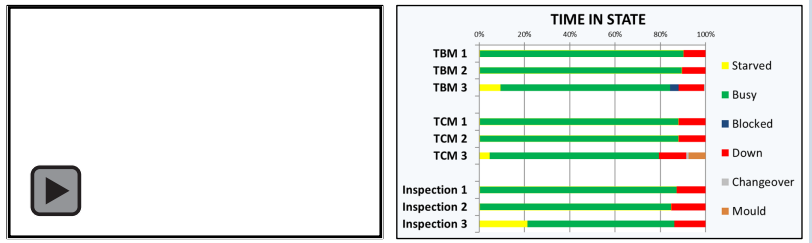
Simulation of a Tyre Factory for a Leading Producer

Tyre Industry | **AutoMOD** | **Bottleneck Analysis** | **Feasibility Study** | **Buffer Analysis**

One of India's leading tyre manufacturers planned to install a conveyor system to replace manual trolleys that carried tyres through Tyre Building Machines (TBM), Curing Machines (TCMs) and Inspection stations.



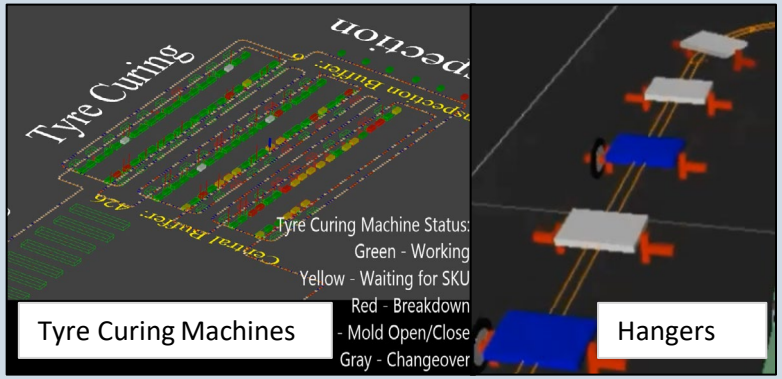
Client's Challenge

- Check feasibility and validate the proposal
- Identify and alleviate bottlenecks in the system
- Recommend alternatives design proposals if required

PMI's Approach

We carried out static analysis and 3D simulation to study in detail:

- TBM → TCM Sub-system with overhead conveyors measuring 600 meters in length
- TCM → Inspection Sub-system with similar features



Findings & Recommendations

We were able to identify that the client's proposal would meet only about 30 % of their monthly target due to:

- *Insufficient number of empty hangers available at tyre building machines, reducing tyre supply into the system*
- *Mismatch in production and consumption at TBMs and TCMs*

After experimenting with several what-if scenarios, we recommended the following changes to achieve their target

- *A hybrid centralized buffer system of 3000 tyre capacity with defined rules for operation*
- *Minimum buffer to be used near tyre curing machines and inspection*
- *Optimum hanger speed and number of carriers to be used in the system*