

IAQ QUALITY SUSTAINABILITY AWARD - ONE-PAGE SUMMARY

The One-Page Summary should be in English and submitted as Appendix 1 to your Application. It will also be published on the IAQ Quality Sustainability Award Homepage; <http://iaqaward.com>. The length of this document must not exceed 1 page.

Project and contact details		
The name of the quality sustainability project (max. 100 characters) Digital and Sustainable transformation of transportation in Mines		
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Organisation(s), country, where the project-members are working, including Web-page links Tata Steel Mining Limited, India		

Project description
<p>Context: Chrome Ore is being dispatched from our mines at Sukinda Chrome Valley. Around 400+ trucks are operated every day, making the entire operations quite complex and time taking. The entry of the trucks at mines start in early morning from 5 am onwards. The process of entering of trucks, loading and dispatch continues whole day and by the time the last truck is dispatched from plant, it becomes quite late in evening. The entire operation is manual as described below:</p> <p>The truck sequencing is done manually and so the entry of the trucks at the parking yard. Then the trucks are given entry slip and gate pass manually and the same is entered in the log-book by an operator. Once this activity is done, the driver drives the truck for tare weight. At the weighbridge, the driver gets down of the truck to hand over the document to weigh bridge operator for tare weight capture and the same is entered manually in i3MS and SAP. Even the loading stack is selected manually, and the pre-loading receipt is handed over to the driver and the truck is then guided towards the concerned stack for loading. The entire loading operation takes almost 1 hr. Then the loaded trucks are weighed after physical checking. Each truck is checked manually for weight limit violations. The gross weight is entered manually in SAP & i3MS, then the TP and delivery challan are printed manually, followed by bulk generation of e-way bill. Then the entire documents are consolidated by the operator and handed over to the driver. At the exit gate, truck details are recorded manually in log-book. The transporter supervisor manually generates LR.</p> <p>Problem Statement:</p> <ol style="list-style-type: none"> 1. Issue in truck sequencing 2. Limited visibility and control 3. Manual and multiple paper-based documentation causing delays and errors 4. High turnaround time of trucks inside mines 5. Productivity and efficiency loss 6. Potential unsafe situations inside mines <p>Solution implemented: A digitally enabled e-log system has been implemented in Sukinda Mines to overcome above problems.</p> <p>The revised process is: The truck sequencing and issue of token is done through system. The gate-pass is auto-generated and GPS is issued along with RFID. When the truck reaches the entry gate, the RFID reader switch traffic light and the boom-gate opens. The same can be cross-verified by entry-gate operator. The RFID reader triggers Weigh Bridge Software, auto fetch tare weight and update tare weight in SAP. The RFID reader only allows authorized trucks inside and the trucks await intelligent loading through display board. The loading is done manually / mechanically. Then the RFID reader triggers Weigh Bridge Software, auto fetch gross weight, TP gets generated in i3MS, auto invoice in SAP, auto E-Way Bill generation, auto digital LR generation - all printings are done through SAP. At the exit gate, printed documents are handed over to the driver and the GPS is collected back. This helps the shift In-charge with Real-time dashboard, Update DO in app, i3MS permit info in app, Behavioral based truck blocking and generate hourly reports in app. Apart from enabling complete visibility and bringing unmatched safety features, this project has resulted in reduced TAT of trucks, saving papers and ease of doing transportation to the ecosystem.</p> <p>Methodology Used:</p> <ol style="list-style-type: none"> 1. DMADIC (Define-Measure-Analyse-Design-Implement-Control); 2. PDCA rotations (Plan-Do-Check-Act) 3. Observational Analysis 4. Quasi blockchain 5. Artificial Intelligence 6. RFID based boom barriers 7. Telematics (GPS) device for vehicles 8. Unified platform: Automated documentation by bringing SAP, i3MS, GST Portal Lorry receipt of transporters under one platform

Project leverage potential	Picture/Image describing the project
<p>This project can be horizontally deployed across all mines by customising the solution as per their business rules for seamless transportation and thereby reducing TAT and man-machine interface.</p>	