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From Paper Trails to Digital Dispatch: How Automation Is Reshaping Mining

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Walk into most Indian coal mines today, and you'll still find the same scene: clipboards at the gate, manual entries at the weighbridge, trucks idling in long queues while someone searches for a document. It's 2025, and one of the country's most critical industries is still running on paper. That's changing. And faster than most people realize.



The Bottleneck Nobody Talks About

Mining gets a lot of attention for what happens underground. But the real efficiency killer? Surface operations. Specifically, truck movement.

Every vehicle that enters a mine site passes through multiple checkpoints: gate entry, weighbridge, loading bay, exit. At each one, there's a human with a register, a form, or a spreadsheet. Multiply that across hundreds of trucks a day, add shift changes and connectivity gaps, and you've got a system designed to leak time, material, and money.

Pilferage happens in the gaps. Billing errors happen in the transcription. Compliance delays happen because someone forgot to file the right form. And management is always one step behind, working off reports that are already hours old by the time they land on a screen.

What Automated Material Movement Actually Looks Like

The Automated Material Movement System by CSM was built to close every one of those gaps. The moment a truck approaches the gate, its identity is verified through RFID and FASTag. No paperwork, no manual check. Boom barriers respond automatically. At the weighbridge, weight is captured and logged without a human touching a keyboard. Loading and dispatch workflows move in sequence, triggered by data, not by someone remembering to make a call.

And when the truck exits? Every detail including weight, time, load, transporter, and destination is already in the system. SAP gets updated. Khanij 2.0 compliance is handled automatically. The GPS trace is live. Transporters track their own trips through a mobile app. Mine managers see everything on a real-time dashboard. There's no lag, no guesswork, no end-of-day reconciliation nightmare.



Integration Is the Real Story

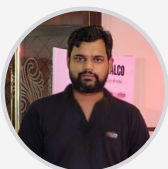
A lot of automation tools solve one problem and create three more because they don't talk to anything else. The system by CSM was designed the other way around. Integration first.

It connects with SAP for billing, Khanij 2.0 for regulatory compliance, FOIS for freight tracking, GPS systems for live traceability, and Adani's AI platform Drishti for predictive intelligence. The result isn't just a faster process. It's a smarter one, where data from every checkpoint feeds into a single, coherent operational picture.

The Pilot That Could Change the Benchmark

The system is currently being piloted at GP III, Dhirauli Coal Mines in the Singrauli Cluster, one of Adani Natural Resources' most active sites. What works here gets scaled across all Adani mining locations.

That's the ambition: not just digitizing one mine, but setting the standard for what a modern, paperless, fully traceable Indian mining operation looks like. The template is being written right now. And it's being written in data, not on paper.



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