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7 Digital Innovations Driving Smarter Coal Logistics

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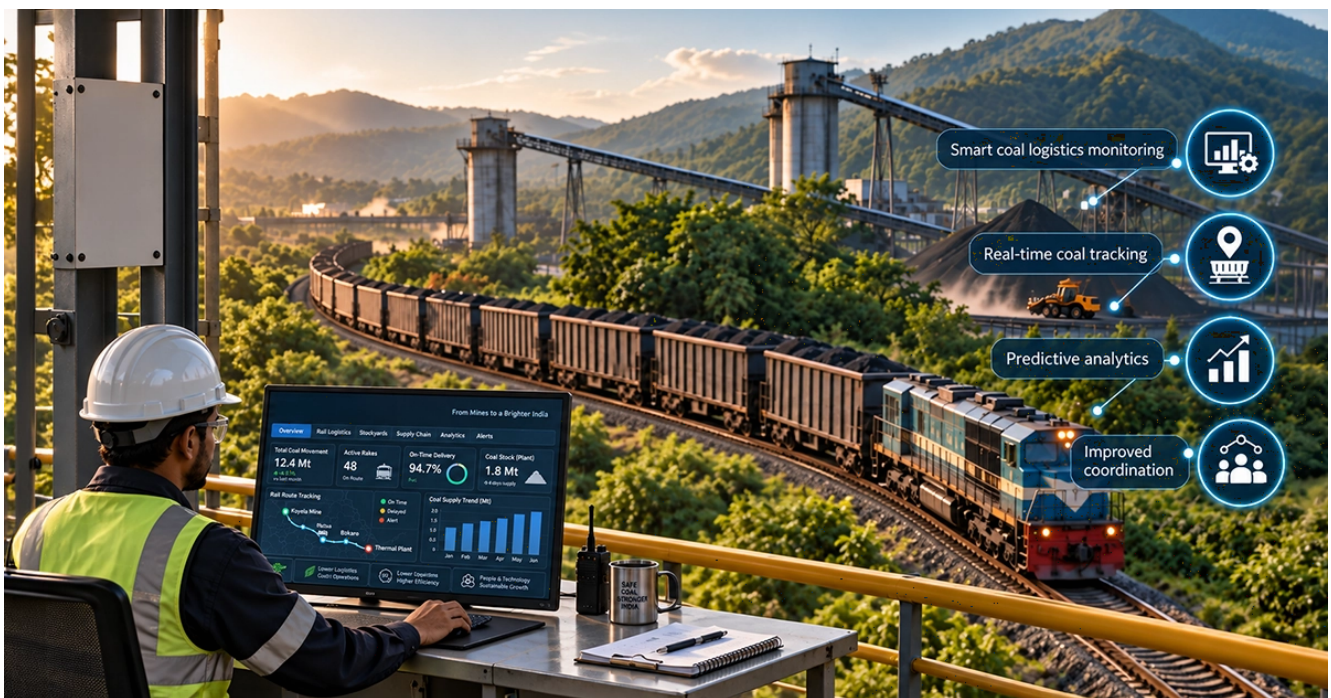
Coal logistics is a race against time, distance and uncertainty. From mine pits to power plants, every delay can disrupt the journey of a critical energy resource. India's answer rests on replacing fragmented operations with connected, data-driven systems that make coal movement smarter, faster and more transparent.



Here are seven digital innovations transforming coal logistics in India.

- **Koyla Shakti Dashboard:** India's digital command centre connects coal producers, railways, ports and buyers, enabling real-time coordination and smarter logistics decisions.
- **First Mile Connectivity (FMC):** Conveyor belts, silos and rapid-loading systems replace truck-heavy transport, helping reduce congestion, coal dust and delays. India has commissioned 72 of 139 FMC projects, with 589 MTPA capacity.
- **GPS-Based Truck Dispatch:** Satellite tracking guides dump trucks across sprawling mines, reducing idle time and improving vehicle utilisation.

- **Payload Monitoring Systems (PLMS):** Real-time weighing helps prevent overloading, improves load accuracy and strengthens dispatch and billing records.
- **Vehicle Health Monitoring (VHMS):** Remote monitoring detects mechanical problems early, helping prevent breakdowns and keep coal moving.
- **Smart Conveyor Systems:** IoT sensors monitor belt speed, temperature and potential blockages, allowing operators to respond before minor faults become major stoppages.
- **End-to-End Digital Tracking:** Integrated road, rail and conveyor tracking creates visibility from mine to power plant, improving accountability and supply-chain coordination.



Why It Matters

India produced a record over 1 billion tonnes of coal in FY 2024-25, making logistics efficiency as important as production itself. As volumes grow, digital coal logistics will be the difference between bottlenecks and seamless energy security.

Turn Coal Despatch Bottlenecks into Measurable Business Gains with CSM Technologies

In an industry where every tonne, trip, and transaction matters, CSM Technologies' **Digital Logistics Management System (DLMS)** is reimagining coal logistics through a powerful blend of automation, intelligence, and real-time visibility. Built for **Mining 4.0** DLMS transforms fragmented, paper-based operations into a connected digital ecosystem that seamlessly manages coal movement from mine to market.

What differentiates CSM is not just digitization, but orchestration. DLMS acts like an intelligent air traffic control tower for coal logistics, synchronizing every stakeholder, asset, and movement into a single source of truth. The result is greater transparency, improved compliance, reduced turnaround time, minimized revenue leakage, and significantly enhanced dispatch efficiency.

The impact is already proven. At a leading Navratna enterprise under the Ministry of Coal, CSM's solution enabled 106% growth in annual coal dispatch volumes, generated over 7 lakh e-passes digitally, and dramatically reduced operational bottlenecks while strengthening auditability.

As coal logistics becomes increasingly data-driven, CSM Technologies is not merely automating processes. It is building the digital backbone for a smarter, faster, and more transparent mining future.



The Road Ahead

The future lies in AI-driven forecasting, digital twins, autonomous haulage, and predictive supply-chain intelligence. Coal logistics is no longer about moving fuel. It is about moving information faster than the fuel itself. As India advances toward a digitally intelligent energy ecosystem, industry leaders must accelerate investments in smart logistics technologies today to build the resilient, transparent, and sustainable coal supply chains of tomorrow.



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