One of the world’s largest mining companies selected Uptake to help optimize their maintenance strategy. Insights generated using predictive industrial analytics uncover upwards of $34M in incremental value over five years.

Vertically integrated mining companies operating rail assets are in a unique position because of their level of control over the entire value chain. However, given the downstream risks associated with faults of rail cars on their tracks, unplanned downtime becomes extremely costly very quickly. Predicting these failures before they happen combined with automated optimization of preventative maintenance strategies can save millions of dollars.

One of the world’s largest mining companies sought to find a comprehensive solution to improve their preventative maintenance program. Due to the extremely costly nature of downtime for one of their assets, keeping operations independent from third parties is a critical advantage. Hence, mining companies of this scale often own, maintain, and operate their own railway track, locomotive & railcar rolling stock, train signalling network, and equipment.

Due to the large value of mined ore each train carries, delays and faults on the proprietary rail network are extremely costly. Improving efficiencies across the entire operation became a strategic priority because of the significant value at stake.
Uptake Radar was deployed in this mining company’s operations to monitor nearly 10,000 rail cars.

The pre-trained analytics models in Uptake’s Digital Industrial Library (DIL) that were built to analyze rail cars focus on identifying issues with rail car wheels, bearings, and axles. Uptake leverages four core data sources to highlight data signatures that indicate issues:

- **Wheel Impact Load Detection (WILD)**
- **Wheel Condition Monitoring (WCM)**
- **Hotbox Temperature Monitors (HBD)**
- **Bearing Acoustic Measurement (BAM)**

As with all major industrial operations, any equipment alerts are ranked by severity. High severity alerts typically indicate that a machine needs attention immediately. In the case of this mining company, high severity alerts mean that a rail car will not be able to complete its next trip and needs to be pulled out of service (shopped) for maintenance right away.

On average, Uptake Radar delivers seven days advance notice on high severity WILD alerts and 11 days for high severity BAM alerts. The typical cost of any high severity alert occurring without notice exceeds $6,000 per event.

While high severity alerts represent the most significant opportunity to generate value, advance notice for any type of alert is an important part of optimized maintenance practices. Uptake enables additional lead time of 14 days for medium severity alerts and roughly 30 days for low severity alerts. In collaboration with the mining company, Uptake confirmed that these advance warnings can generate nearly $34 million of additional value over five years.

Uptake Radar’s sophisticated industrial analytics generate value in multiple ways. By increasing lead time and predicting impending failures, Uptake enables data-driven and proactive maintenance planning that includes bundling of maintenance tasks as well as executing tasks that were not previously planned for a particular maintenance stop. Preventing failures results in converting unplanned maintenance to planned tasks, which greatly reduces maintenance cost.

Consequently, Uptake’s direct impact on maintenance costs goes straight to the bottom line. Increased uptime leads to incremental revenue compared to the status quo. Additionally, the increased lead time Uptake enables (7 days for high severity alerts) exceeds the average duration between maintenance events (6.3 days). Conservatively, Uptake will enable this mining company to reduce the previous 1,850+ events per rail car by over 50%, which unlocks value of $34 million in reduced maintenance costs and incremental revenue.

**Run every mission with confidence. Are you ready for more efficient railcars?**

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