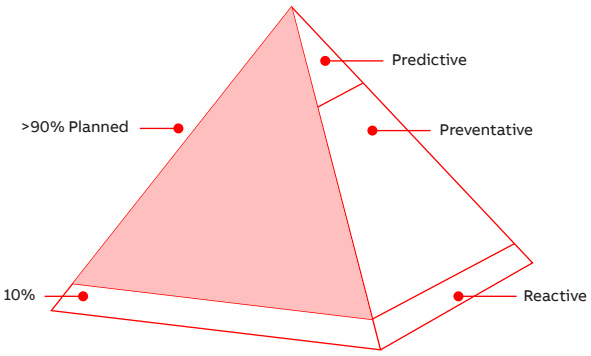
Achieving the World Class Maintenance Standard for Mine Hoists

A predictive maintenance strategy can be hugely beneficial as an addition to a successful preventative maintenance strategy. Following a recent project, ABB has found that strategies focusing 90% of maintenance on planned activities to deliver the optimal availability.



Through experience of developing and assisting a global mine hoist end user community, ABB proposes an 8-step plan for a digital predictive maintenance to implement achieve this 'World Class Maintenance' standard.

Identify suitable assets

A mine hoist is a primary candidate for a predictive maintenance strategy due to the high risk and high impact on both production and safety

Baseline maintenance and prior performance

Document existing preventative maintenance strategies and resulting performance KPIs to evaluate the improvements and return on investment of the predictive maintenance transition

Identify failure modes and sensors required

Ideally in partnership with the OEM, identify the potential failure points of the asset together with the probability and/or mean time between failures (MTBF). ABB recommends prioritizing the initial sensor hardware required

Invest in a data collection and analysis platform

Many alternatives for general predictive maintenance, but for high risk/impact, complex assets such as a mine hoist, consider the competency requirements (internal/external) for successful implementation

Record the data and build ML/AI models

Start building a history of the mine hoist data for selected pilot conditions and develop algorithms to simulate expected sensor readings across the operating conditions

Train and test the ML/AI, adding alerts

Improve the accuracy of the simulation models and add predictive condition alerts based upon the drift or divergence of sensor data from the expected reading across operating conditions

Expand predictive maintenance with more conditions

From the initial implementation of the highest priority condition, add to the PdM platform with further conditions

Invest in a continuous learning program

For a successful predictive maintenance strategy it is necessary to improve the competencies of resources to integrate the technologies. For a mine hoist, the diversity of skill sets required is complex

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