

Overall Equipment Effectiveness (OEE)



ALL INDUSTRY VERTICALS

Data Sources

- OSIsoft PI + Asset Framework

Data Cleansing

- Seeq capsules were created using Value Search to differentiate between each of the various modes of operation.

Calculations & Conditions

- Asset Trees
- Asset Swapping
- Treemap
- Histogram
- Value Search
- Signal from Condition
- Scorecard Metric
- Formula

Challenge

An in-depth understanding of Overall Equipment Effectiveness (OEE) across a site is critical to identify process bottlenecks and maximize production. OEE analysis can be difficult to standardize and scale across many similar or dissimilar assets that are found at a manufacturing site. It is useful to develop a simple scoring method to categorize various process units on a spectrum of overall effectiveness.

Solution

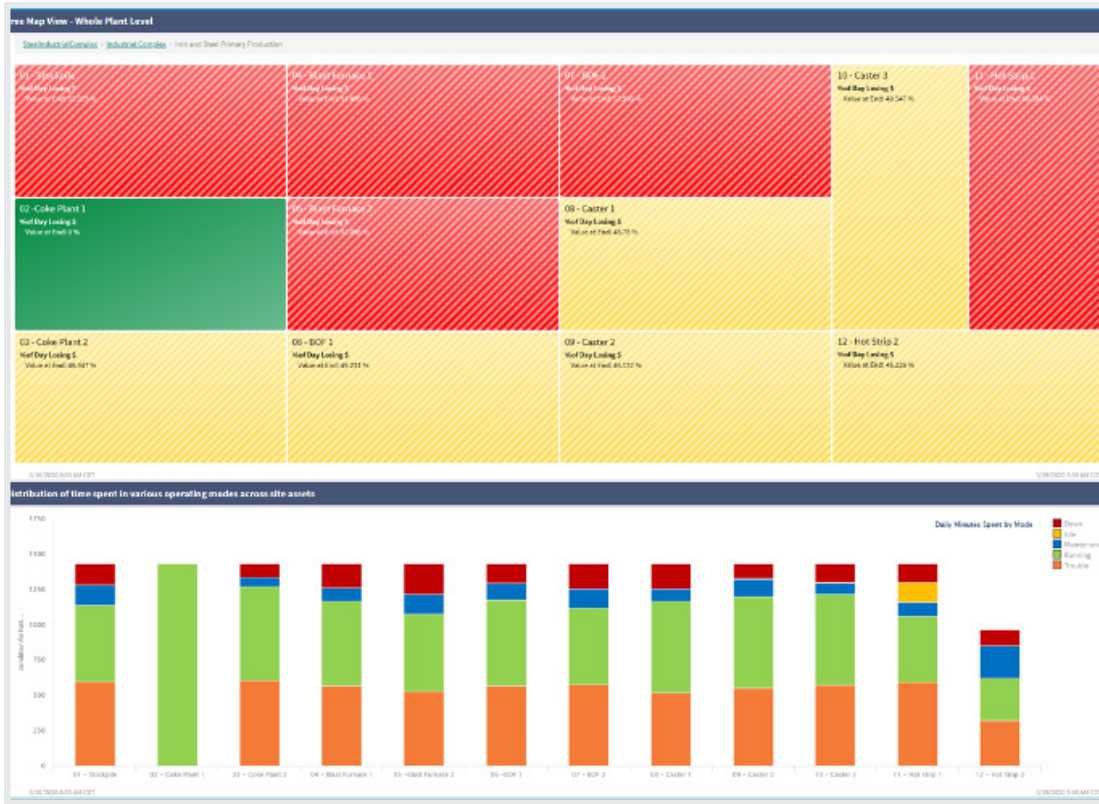
A large-scale manufacturing operation implemented Seeq's advanced analytics. In Workbench, the teams are now able to utilize the Point and Click tools to identify unique modes of operation and time spent in each mode. Their engineers are empowered to use historical benchmarking to identify appropriate threshold limits to differentiate between ideal and non-ideal equipment operation. The Seeq integration with existing asset hierarchy systems enables analysis to be scaled across all site equipment.

Results

Implementing the plant-wide OEE Dashboard, including high-level comparison across process units, unveiled some unexpected bottlenecks. While the site had historically been looking only at uptime as a means of measuring OEE, they were ignoring large periods of time when the unit was running but under some constraint. This analysis across assets enabled them to identify which processing units saw the greatest rate constraints while running, investigate the root cause of those constraints, and invest in those areas by installing capital projects to de-bottleneck the process.

Reporting & Collaboration

A high-level dashboard was created to showcase the "big picture" at the top of the dashboard. The treemap color-coded by OEE score of the various process units is interactive, and consumers of the report can click into a unit shown in red to gain further insight into what aspects of that unit are driving the low OEE.



A treemap showing process units with a slightly lowered OEE score (yellow) and process units with a significantly low OEE score (red). A histogram showing the breakdown of time spent in various modes of operation (used in calculation of OEE score) for each asset.



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