



a case study

Edge analytics helps manufacturer reduce scrap by 21%

THE CHALLENGE

In their ongoing efforts to drive productivity, efficiency and lower costs, Honeywell identified opportunities at several sites to enhance production processes for turbine engines. Analysis showed low process capability, presenting opportunities to reduce rework and costs while enhancing Rolled Throughput Yield (RTY), which measures the probability of completing processes free of defects.

THE SOLUTION

The project team connected new instrumentation with I/O via the RTU2020 from Honeywell Process Systems. The team also combined elements of the Niagara Framework® user interface; the Niagara Analytics Framework for edge analytics; and IBM statistical analysis for enterprise analytics. Real-time sensor data from multiple sources provided:

- Visualization of critical variables such as gas flows, voltage and temperature. This eliminated the need for operators to make rounds to collect data from meters; information is now available from anywhere electronically. This also eliminated misreadings.
- Identification of process deviation, so that adjustments can be made to keep processes on track, within specifications and tolerance band. Edge analytics depends on software solutions that enable rapid process adjustments at the edge of the IoT hierarchy.
- Display of work instructions and set points for parts, reducing possibility of error.
- Models to manage tolerance bands, allowing permanent process changes to help reduce defects and re-work.
- Large overhead monitors showing process conditions, providing clear insight for employees throughout the entire work cell.
- Streamlined connectivity to the productivity and planning system, providing actionable information to keep productivity within quality specs.
- Enhanced production planning through precise deployment and management of resources required to achieve production goals.

THE RESULTS

Enhanced visualization and statistical insights enabled the team to better manage process set points, thus lowering the defect rate. With more detailed information, the team also has improved part inspection and traceability throughout the process value chain, while proactively monitoring and resolving machine maintenance issues. Through predictive modeling, the team forecasts future values, resulting in a higher percentage of process variables within or below process limits. For example, predicting part temperature helps optimize cooling and decrease process variability, while also helping identify parts needing closer inspection to reduce rework.

“Visualization, process correlations and statistical insights enabled us to identify and implement process improvements. Better processes are producing better products and better results.”

FELIPE SANDOVAL

VICE PRESIDENT, INTEGRATED SUPPLY CHAIN
HONEYWELL AEROSPACE

CASE STUDY FAST FACTS

- **Measurable results:** Project reduced defects and re-work by 23% and scrap by 21%, resulting in a First Pass Yield of 96%.
- **Greater productivity:** Visualization of critical variables eliminated the need for operators to make rounds to collect data; information is available remotely.
- **Accuracy:** Data is captured electronically, eliminating manual misreadings.
- **Precision:** Edge and enterprise analytics help identify process deviation, enabling rapid adjustments to keep processes within specifications and tolerance band
- **Statistical insight:** With visualized, detailed data, the team has improved part inspection and traceability while proactively monitoring and resolving machine maintenance issues.

Honeywell

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