



Exensio™ Test Operations provides an **enterprise platform to monitor, control, and optimize semiconductor test processes** in real time. It **unifies** test data, rules, analytics, and ML across the entire supply chain to improve outgoing **quality, throughput,** and operational **efficiency.**

Test operations typically rely on **fragmented tools** across a **distributed supply chain**, and **site-specific implementations** that do not scale. Limited visibility, disconnected data flows, and limited governance make it hard to prevent escapes, optimize test cost, and maintain consistent control across sites.

Test process control at scale for consistent outgoing quality

Integrated rules, analytics, data feed forward and ML

Secure data collection & transport across supply chain

The diagram illustrates four interconnected components of a test process, arranged in a 2x2 grid. Each component is represented by a light blue circle containing an icon, followed by a title and a description. The components are:

- Test Process Control Workflow**: Executes **rules, custom algorithms**, and **ML** models inline or post-process to control test outcomes. (Icon: Clipboard with a checkmark)
- Quality & Outlier Screening**: Applies **statistical methods** and **ML screening** to detect devices at risk, reduce overkill, and improve quality. (Icon: Line graph with an upward arrow)
- Analytics & Visibility**: Delivers **near-real-time visibility** into yield, binning, tester performance, and **OEE** across sites. (Icon: Eye)
- Model & Rule Operations**: Centralized **creation, simulation, approval**, and **deployment** of rules and models with full traceability. (Icon: Document with a list)



Use Cases

Data Quality for Reliable Manufacturing Analytics

Manufacturers often find that analytics value is constrained by **incomplete or mislabeled manufacturing data**.

Using Exensio, teams establish a **scalable data quality framework** that **measures completeness** against sources-of-truth, **detects gaps at ingestion**, and **augments or corrects data** to ensure analytics-ready datasets across test operations.



Challenge

Engineering teams spend excessive time **wrangling data** due to missing records, incomplete metadata, and inconsistent ingestion across test tools.



Result

Exensio enables **consistent, high-quality data ingestion and correction**, allowing engineers to focus on analytics & automation instead of data cleanup.



Challenge

Static test programs limited **throughput optimization** and drove unnecessary test cost.



Result

Exensio enabled **adaptive testing** that improved utilization and throughput while maintaining outgoing quality targets.

Data Feed Forward – Adaptive Test Enabled by ML

To balance **cost of test** with customer quality requirements, a manufacturer deployed **adaptive test flows** driven by **ML models** using Exensio.

Rules and models dynamically adjusted coverage based on lot and wafer behavior, supported by **real-time analytics** and historical trends.

20–40×

better performance using models vs. conventional outlier screening

10-20%

equipment efficiency improvement

85%

reduction in unforeseen excursions

results based on actual Exensio customers

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