



IX[®] Case Study

Enhancing Quality and Delivery Performance for an Aerospace and Defense Electronics Manufacturer



IMPLEMENTATION
ENGINEERS[®]
BEYOND CONSULTING

IX® in Action

21%
improvement
in on-time
delivery

43%
increase in
unit
throughput

52%
improvement
in First Pass
Yield

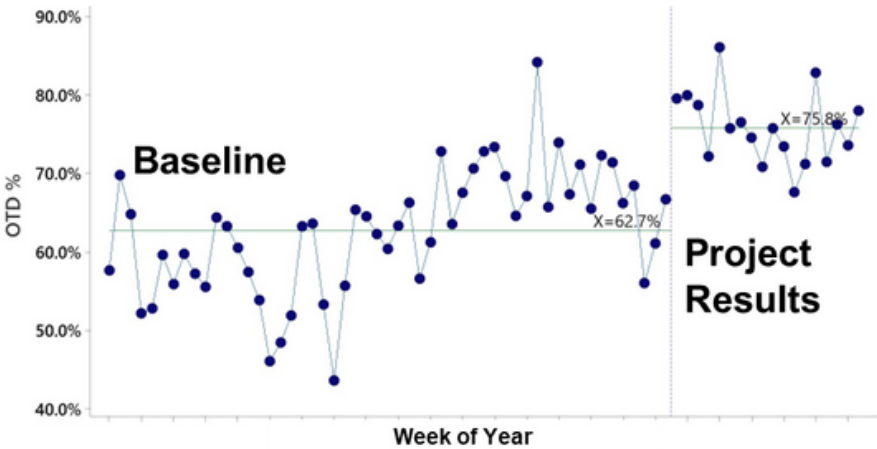


Implementation Engineers partnered with a leading electronics manufacturer specializing in commercial and military communications devices. The client, a key player in the aerospace and defense sector, faced persistent challenges with on-time delivery to its customers, impacting both operational efficiency and customer satisfaction.

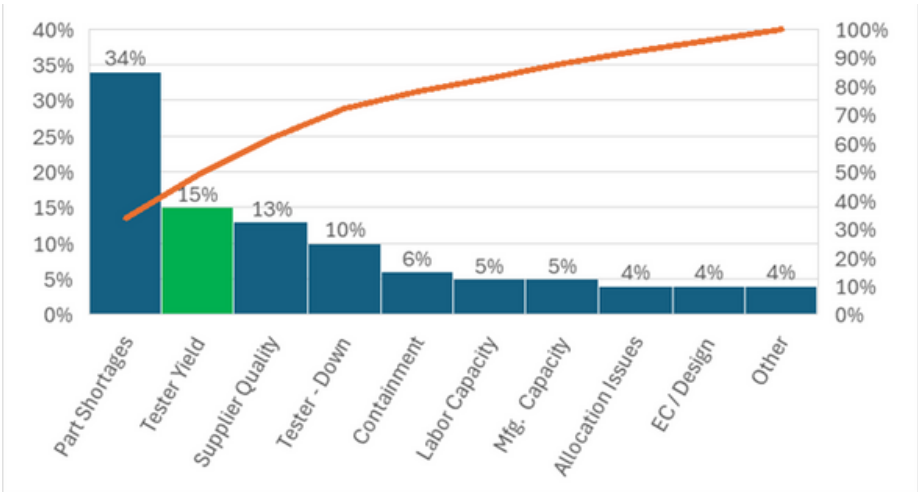
The Challenge

The manufacturer struggled to meet delivery schedules, a critical metric in an industry where reliability and timeliness are non-negotiable. Initial assessments pointed to supplier performance issues as a contributing factor, but this was deemed out of scope for the project. A deeper investigation revealed that the second most significant root cause was tester first pass yield (FPY)—the percentage of units passing testing without requiring rework or retesting. Low FPY across the facility’s four business units was creating bottlenecks, increasing cycle times, and delaying shipments.

On Time Delivery to Customer



On Time Delivery Root Causes Pareto



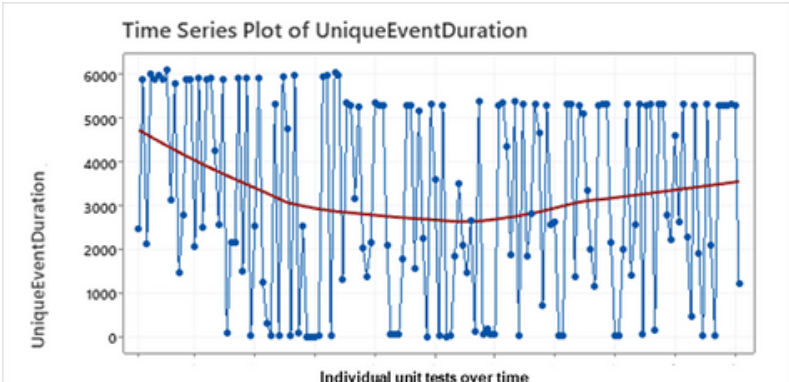
Approach

Implementation Engineers deployed a structured, data-driven methodology to diagnose and resolve the issue. The team conducted a comprehensive root cause analysis, leveraging thousands of detailed records extracted from the client’s Derby test database. This process required matching test data to specific test stands, SKUs, and serial numbers—a time-intensive effort that laid the groundwork for actionable insights.

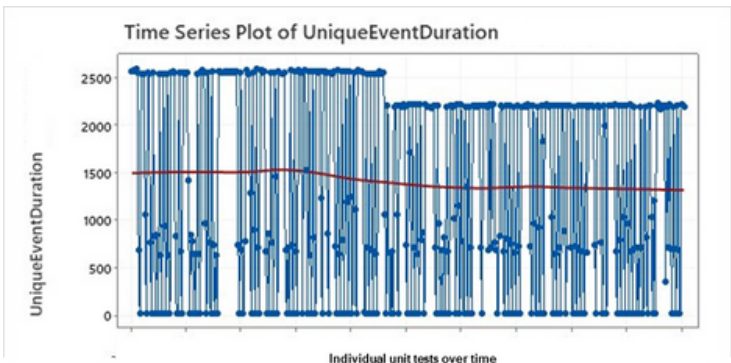
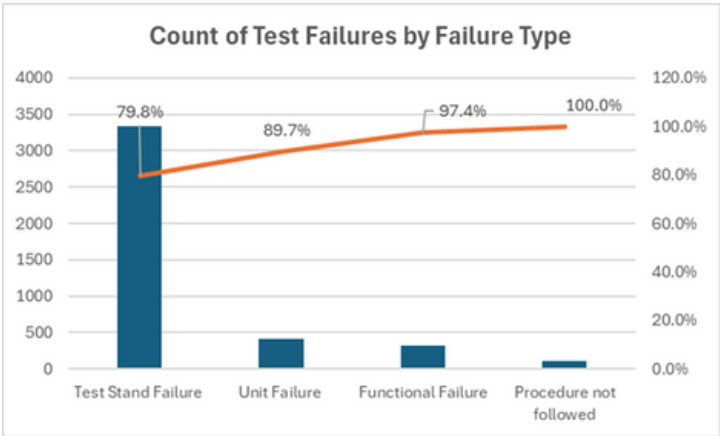
By analyzing the cycle time of failures for each unique SKU/tester/test combination, the team identified a multi-modal distribution of failure patterns, indicating distinct failure categories with likely shared causes:

- **Infant Mortality Failures:** Failures occurring immediately (cycle time near zero), suggestive of connectivity or communication issues between the test stand, the unit, and/or the software
- **Software Timeout Failures:** Failures after prolonged durations, often linked to software revision incompatibilities with test stands
- **True Unit Failures:** Failures in the mid-range of the cycle time distribution, typically representing genuine defects in the units themselves

Test Stand A, Test A, SKU A



Test Stand B, Test B, SKU B



Further analysis revealed that specific test stands were disproportionately responsible for failures, with some accounting for up to 80% of failed tests for certain assets. Through collaborative root cause meetings with the client’s team, a critical insight emerged: the cables connecting test stands to testers were in poor condition. Compounding the issue, there were no formal inspection requirements or preventive maintenance procedures for these cables. Maintenance work orders were only issued reactively—after operators identified a cable as faulty, often following multiple failed tests and retest attempts.

The Solution

Implementation Engineers proposed and executed a targeted quality improvement plan focused on the test stands and their supporting infrastructure:

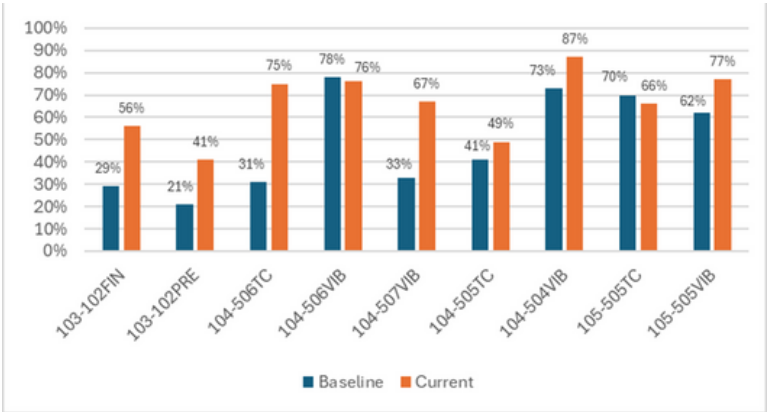
- **Cable Condition Assessment:** A thorough evaluation confirmed that cable degradation was a primary driver of test failures
- **Autonomous Maintenance Program:** The team introduced a proactive maintenance initiative, empowering operators to perform routine inspections and basic upkeep on cables and test stands. Data analysis showed that 72% of the identified failures could be mitigated through this program
- **Process Optimization:** Adjustments were made to address software revision incompatibilities and enhance connectivity between test stands and units

The Results

The implementation of these solutions delivered significant, measurable improvements across key performance indicators:

- **52% Improvement in First Pass Yield:** In-scope test stands saw an average FPY increase of 52% from baseline, reducing rework and accelerating production flow
- **43% Increase in Unit Throughput:** Enhanced testing efficiency resulted in a 43% improvement in completed units for in-scope test stands
- **21% Improvement in On-Time Delivery:** By addressing the tester-related bottleneck, the client achieved a 21% uplift in on-time delivery, strengthening customer trust and satisfaction

Test Stand First Pass Yield vs Baseline



Through rigorous data analysis, collaborative problem-solving, and targeted process improvements, Implementation Engineers transformed a critical pain point into a competitive advantage for the client. The project not only resolved immediate quality and delivery challenges but also established a foundation for sustained operational excellence. By empowering the client’s team with an autonomous maintenance program and actionable insights, Implementation Engineers ensured long-term resilience in a demanding industry.

Let's Get Started

- Schedule a meeting with our team to discuss how Implementation Execution (IX®) can help your organization achieve its goals. Submit an IX® request on our website at www.implementation.com
- Visit www.implementation.com to read more about IX® and how we have helped our clients create sustainable results
- Follow us on LinkedIn to stay up to date with the latest industry insights and updates. Join our network to access exclusive content and stay connected with our team of experts

Learn More: www.implementation.com



**IMPLEMENTATION
ENGINEERS®**
BEYOND CONSULTING