

Laser-Focused Analytics for Photonics Manufacturing

How a global optics leader collapsed a two-day reporting cycle to 15 minutes, lifted first-pass yield by 4.5 points, and freed engineers to innovate



About the client

**Client Profile:**

7 fabrication plants | 20+ countries served

**Location:**

North America

**Service:**

Data analytics and AI

**Technology:**

Microsoft Fabric

The Business Challenge

In photonics manufacturing, even minor process deviations can create major financial impact. Small variations in coating thickness, diode alignment, or optical assembly can compromise quality and scrap high-value components.



Data was spread across ERP, MES, and SPC systems.



More than 1,000 reports depended on manual extraction and spreadsheets.



Reporting cycles took up to two days.



Engineers spent nearly 25 hours each week preparing and validating data.



Conflicting lot, batch, and run definitions produced inconsistent yield figures.



Only 42% of managers fully trusted the data used in quarterly reviews.



The Transformation

SmartForge on Microsoft Fabric created a unified analytics foundation across production and commercial operations. Data from 250+ ERP, MES, and SPC tables was consolidated into OneLake and refreshed every 15 minutes. A harmonized semantic model aligned wafers, optics, modules, lots, batches, and production runs—creating one governed view of yield, throughput, quality, inventory, and performance.

More than 200 role-based Power BI reports gave executives trusted visibility and engineers near-real-time insight into process variation.

How the Solution Created Value



Earlier Visibility into Process Drift

Teams identified coating, alignment, and yield anomalies within the production cycle, enabling intervention before defects moved downstream.



Trusted Performance Metrics

Standardized business definitions removed conflicting calculations and created one governed version of operational performance.



Reduced Manual Reporting

Automated ingestion and reporting eliminated repetitive data preparation and freed engineers to focus on improvement and innovation.



Connected Operational and Commercial Insights

Manufacturing, inventory, supply chain, and sales data were brought together to link plant performance with delivery and revenue impact.

Results in the First Phase



97%

faster
reporting



15

minutes report
turnaround



4.5 Point

increase in first-
pass yield



\$1.8M

annual
scrap savings



35%

faster
quote-to-ship
cycle



65%

fewer
analytics
support tickets



**Rapid
ROI**



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