

Manufacturing

Upgrade to Industry 4.0 and Increase the Speed of Innovation across your Organization

Make faster decisions, reduce manual effort, avoid human error, improve operational efficiencies, and increase profits across the Manufacturing value chain through data-driven AI solutions.

Quantiphi's Data + AI expertise helps manufacturers tackle their business and technical challenges across the value chain, leading them into a sustainable and profitable future.



REAL WORLD RESULTS: CASE STUDIES

Engine Defect Detection



A global automotive manufacturer wanted to augment their plant's capabilities with a reliable and scalable quality inspection solution powered by machine learning models

Solution

Developed a custom computer vision model to provide real-time pass/fail decision for defect detection of the engine casing on the assembly line, with an active learning pipeline for quality inspectors to label sample datasets for incremental improvement of the model performance over time

Business Impact

- Faster Inspection Process
- Reduced Manual Effort
- Improved model accuracy score from **50% to 95%**

Virtual Screening for Material Design



A material science and specialized engineering company wanted to reduce the R&D cost of testing brake and shock absorption technology, which typically ran for an average of 12 hours

Solution

Developed a virtual testing solution that enables chemical formulators to design materials on the desktop and run confirmatory tests only for the most promising material compositions; allowing preemptive screening of suboptimal brake pads and identification of optimal designs

Business Impact

- Potential Annual Savings: \$2M USD
- Time saved per test: 12 Hours
- **80%** accuracy of the solution

Predictive Maintenance



An American multinational energy corporation wanted to reduce the high costs and facility downtime in their oil rigs attributed to malfunctioning equipment

Solution

Built a data pipeline from client's on-prem to cloud that routes telemetry data to APIs, datastores, and visualization platforms in order to accurately predict when compressor failures will occur

Business Impact

- Near real-time ingestion of telemetry data to GCP
- Minimized facility downtime
- Save real dollars and time
- Ensure the safety of operators

Warehouse Inventory Count Automation



The movement of Stock Keeping Units (SKUs) from the warehouse and into trucks is often prone to errors due to manual dependency on scanning the labels; impacting shipment fulfillment that may result in loss of material, poor productivity, and compromised customer satisfaction

Solution

Quantiphi developed a custom computer vision framework for validating order and shipment accuracy via automated tracking and flagging of incorrect shipments; reporting results on a web user interface in the form of alerts for quick corrective action

Business Impact

- Avoid shortfall in warehouse inventory
- Maintain customer satisfaction
- Create proof of shipments
- Save time & money spent on wrong shipments