

## AIGC Services – Smart Plant - Smart Factory

### *Case Study: A factory achieved smart manufacturing via AI, ML, Video, and yield Analytics*

#### **The Opportunity**



A manufacturing company was looking for technologies to maintain its cost-competitive edge, reduce its Capex needs, ramp-up faster new products, and improve quality.

#### **The Approach**

As part of the project, one of our experts deploys smart factory digital solutions across its manufacturing company facilities.

They are utilizing machine learning to improve automated material handling efficiency and reduce tool idle time. The AI Applied Automated Material Handling

System (AMHS-AI) was used to auto-detect and resolve the issue by combining knowledge-based and machine learning algorithms.

Besides, they have used video analytics, leveraging deep learning, for manufacturing process anomaly detection. This includes equipment event detection leveraging video and image analytics on edge to augment existing in-line IOT sensing capabilities. They have also combine High-speed Camera, GPUs, and Deep Learning to monitor real-time manufacturing process anomalies.

The Smart factory included as well integrated yield analytics platform leveraging AI/ML auto-diagnostic capabilities across 1000+ production and metrology steps. The yield analytics platform consisting of map & image analytics, auto-diagnostics & predictive engine functionalities enabled early defect detection and complex correlation analysis across 1000+ production and metrology steps.

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#### **The Benefits**

- Vital financial influence
- Reduction in bottleneck tool idle time by 22%
- 48 full-time equivalents labor productivity enhancement
- 10% reduction of product downgrades from unexpected events
- Improve cycle of learning for new product ramp by 20%
- A decrease in yield loss by 2%
- 8 full-time equivalents labor productivity development