Powering Intelligent Manufacturing with Oracle Fusion

Project Summary

Status: Completed

A precision manufacturer of high-quality metal components for aerospace, automotive, and energy sectors, using advanced machining and IoT-driven predictive maintenance. It leverages a website and mobile app for efficient operations and supply chain management.

Challenges:

> **Disconnected Systems Limiting Visibility:** Data was fragmented across multiple systems ERP, MES, inventory management, and legacy databases preventing a unified view of production and supply chain workflows.

> **Lack of Real-Time Equipment Monitoring:** Absence of centralized processing for IoT sensor data hindered early detection of equipment issues, causing unplanned downtime and reactive maintenance.

> **Scalability Issues with Expanding IoT Data:** The company's growing IoT ecosystem, across several plants, overwhelmed its legacy infrastructure and introduced risks of delays and data loss.

> **Complex Integrations Across Digital Platforms:** Multiple ERP, MES systems, a custom mobile app, and the website operated in silos, requiring a robust integration strategy for smooth, real-time data exchange.

Solutions:

→ **Oracle Fusion Cloud ERP & SCM:** Centralized finance, procurement, inventory, and supply chain operations in a unified cloud platform, enabling full end-to-end visibility and control.

→ **Oracle Integration Cloud (OIC):** Seamlessly connected ERP, MES, IoT devices, and custom applications (mobile app and website), ensuring real-time data synchronization and eliminating silos.

→ **Oracle Analytics Cloud (OAC):** Delivered real-time dashboards and predictive analytics to enable proactive maintenance, track KPIs, and support faster operational decisions.

→ **Oracle Autonomous Data Warehouse (ADW):** Provided a self-tuning, highly scalable analytics platform capable of managing growing IoT data across multiple manufacturing locations.

Tech Task:

> **ERP & Supply Chain:** Oracle Fusion Cloud ERP, Fusion SCM

> **Data Management:** Oracle Autonomous Data Warehouse, Oracle Database Enterprise Edition

> **IoT & Integration:** Oracle Integration Cloud

> **Analytics:** Oracle Analytics Cloud (primary), Power BI (secondary dashboards)

> **Infrastructure:** Oracle Cloud Infrastructure (OCI), Terraform, GitLab CI/CD pipelines

> **MES:** Custom-built Java-based MES running on Oracle Database

Results:

Full Real-Time Visibility: Oracle Fusion ERP and analytics enabled a unified, real-time view across production lines, inventory levels, and supply chains significantly improving operational control.

80% Downtime Reduction: Predictive analytics helped detect machine failures early, shifting from reactive to preventive maintenance.

Scalable IoT Infrastructure: Fusion solutions supported seamless scaling of IoT data from multiple plants without lag or performance degradation.

No More Data Silos: Integration of ERP, MES, web, and mobile systems through Oracle Fusion streamlined operations and data flow across departments.