

Smart Manufacturing

Building Safe, Sustainable & Compliant Enterprises leveraging IoT, AI & Digital Twins

Managing Technology Shifts

- ☑ Adoption of advanced digital technologies
- ☑ Utilizing advanced knowledge, information management, & AI systems
- ☑ Agile & flexible enterprise capabilities & supply chains
- ☑ Innovation in products, services, & processes

Delivery Model

- ☑ Industry accelerators for faster go-live & productization
- ☑ On demand services partner - OPEX mode of technology transformation
- ☑ Lower TCO by adopting Cloud & Distributed Agile
- ☑ Act as customer's extended technical R&D labs
- ☑ Partnership with Microsoft

Designing Connected Plant Operations (IoT/IIoT)



- ☑ Utilize connected factory models to monitor the health, performance, & utilization of all applications, workloads, & infrastructure
- ☑ Tap insights from operations in real-time to make better, faster decisions using MT Connect, real-time OEE dashboards & remote visual inspections
- ☑ Leverage IoT services, edge computing, data lakes, & advanced analytics to capture, analyze, visualize, & execute on plant floor data

Developing Asset Performance Analytics (AI/ML)

- ☑ Integrate IT & OT systems to connect the asset to the person across the asset lifecycle
- ☑ Design a single integrated digital thread across the whole asset lifecycle, laying the groundwork for predictive alerts & prescriptive analytics
- ☑ Leverage equipment and process data to extend the life of assets & achieve optimum reliability



Deploying Predictive Models (Digital Twins/DT)



- ☑ Utilize predictive maintenance models to optimize maintenance, balance between corrective & preventative maintenance
- ☑ Design maintenance solutions powered by digital twins to precisely monitor equipment health & recognize potential anomalies & prevent future failure
- ☑ Take advantage of an execution playbook as well as a design thinking workshop to develop specific use cases based on an operational impact assessment with targeted ROI

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Building Agile Enterprises for Industry 4.0+

Target Business Outcomes

- ✓ Improves operational performance by comparing patterns across sites
- ✓ Enhances local reporting & decision making
- ✓ Enhances real-time analytics at the site level
- ✓ Provides a unified view of data from multiple sources - structured, semi-structured & unstructured
- ✓ Improves asset monitoring by analysis of incidents
- ✓ Monitors & predicts asset integrity across the energy value chain

KRV Consulting LLC

Sales & Marketing

US - Houston

Services & Solutions Delivery

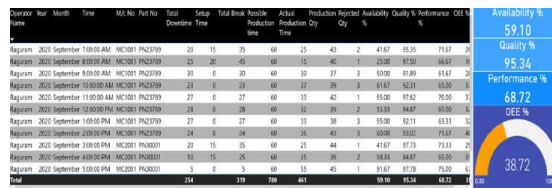
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OEE Analytics IOT/IIOT



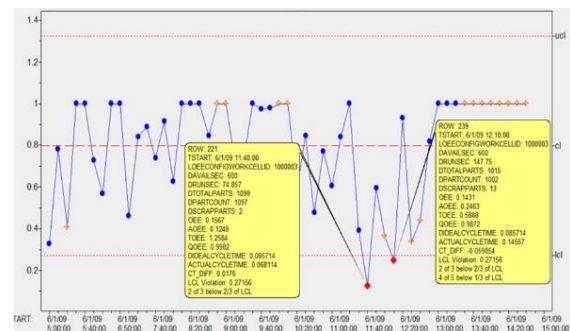
Solution helps in real-time OEE analytics as well as predictive analysis of production runs at customized intervals

- ✓ Real-time dashboard shows availability, quality, and productivity by - Machine, Product, Order, Shift, and Operator
- ✓ OEE analytics reports for trends/outliers, forecasts by Machine, Product, Order, Shift, and Operator between any production period
- ✓ Supports for MT Connect application using Agents to analyze machine/component health status

Process Monitoring AI/ML

Solution helps in monitoring and controlling the process values, and enables optimization of production with the minimum of waste, rework, or scrap

- ✓ Monitors and analyzes specific parts of the production process
- ✓ Continuously monitors process values against target values & predicts the threshold breaches
- ✓ Includes analytical views, automation scripts & dynamic dashboards



Asset Health Prediction

What-If, Reliability, MTTF Models

Solution using an analytics workbench for asset performance analysis specific to asset health insights

- ✓ Identifies fault behavior using pattern recognition
- ✓ Generates Asset Health prediction reports at regular intervals
- ✓ Supports What-If, Reliability Analysis, Mean Time to Failure (MTTF) Prediction, Failure Distribution

