

Smart Manufacturing



KEY ENGAGEMENTS

- **OEE Dashboards** - Designed & developed MTConnect data models with real-time OEE dashboards.
- **Connected Factory Models** - Designed and developed CFM models with real-time KPI dashboards.
- **Production Quality Monitoring** - Remote inspections and detect defects during production using CNN models.
- **Refinery Plant's Alerts & Events Forecasting** - Designed a solution using MS Azure to analyze streaming data from a Process Historian.
- **Refinery Incidents Analyzer** - Solution delivered as an AI driven model based on the refinery incident model.

KEY O&M AREAS

Productivity

- ✓ OEE Monitoring & Analytics
- ✓ MT Connect

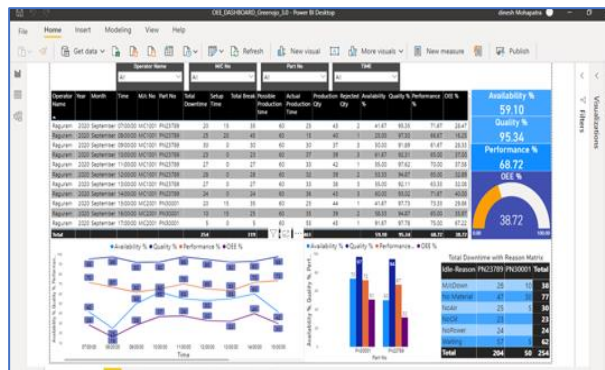
Sustainability

- ✓ Failure Prediction
- ✓ Waste Reduction

Agility

- ✓ Remote Visual Insights
- ✓ Inventory Analytics

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Operational Management - Productivity Monitoring & Prediction of OEE

Solution is built on Microsoft PowerApps which helps in instant visualization as well as predictive analysis of production runs at customized intervals.

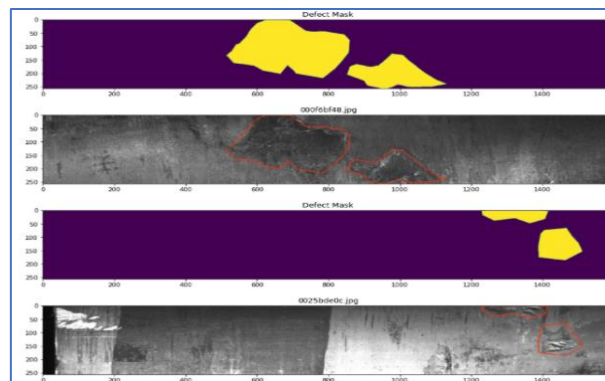
- The real-time dashboard shows availability, quality, and productivity by Machine, Product, Order, Shift, and Operator
- Solution supports for OEE analytics – for trends/outliers, forecasts by Machine, Product, Order, Shift, and Operator between any production period
- Solution also supports for MT Connect application using Agents to analyze machine/component health status
- We also assist in floor improvement projects using tools such as Six Sigma, Lean and TOC



Operational Management - Maintenance APA (Asset Performance Analyzer)

Solution is built on a Sandbox model using IBM Watson for asset performance analysis - for Asset Health Prediction (e.g., ESP, BOP, Boiler, Flowlines, Pipelines, Drill bits, Pipelines, etc.)

- The solution supports a customized ESP Data Template on top of the ESP- RIFTS Dataset
- Generates Asset Health prediction reports at regular intervals, leverages notification engine for E-mail/SMS for the possible failures, support Forecasting/Trends for next 72 hrs. (Planned vs Actuals)
- Solution also supports for What-If Analysis, Reliability Analysis, Mean Time to Failure (MTTF) Prediction, Failure Distribution.



Operational Management - Quality RVI (Remote Visual Inspection)

Solution is built using an open-source computer vision platform to perform remote inspections and detect deviation from specifications (as defects) during production.

- Defects detection using CNN (Convolution Neural Networks)
- App-based streaming on inspected items is shared in real-time to the QC team at production site
- Solution also supports for 3D and AR (Augmented Reality) models

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KEY ACCELERATORS

- ✓ Asset Performance Insights
- ✓ Predicting cyber-security Incidents using AI/ML
- ✓ Connected Factory Models
- ✓ HSE/Safety Risk Analytics
- ✓ Design Digital Twins
- ✓ Asset Reliability Analysis

DESIGN LED TRANSFORMATION

- “Systems level thinking” that is critical in delivering business performance metrics
- Specialists have experiential knowledge in multiple technology transformations in specific domains
- Integrated solutions leveraging engineering and advances in IT – led by design thinking
- Domain expertise in successfully applying these emerging technologies to solve business problems
- Deliver high value-added, fast, and cost-effective projects

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BOT (Build, Operate and Transfer) for Contract Manufacturing

- Digital Procurement Services
- Establish Contract Manufacturing Practice with outsourcing partners from India/Southeast Asia
- Production Monitoring and PMO Support
- QC/Testing at Contract Manufacturer's sites
- Our partner facilities are run in strict compliance with international quality standards such as - cGMP, WHO-GMP, ISO, ANVISA, etc.
- Logistics & Transportation services

Consulting+
Technology solutions
team from Fortune
500 and Tier I
IT/ITES Firms

Members from
consulting,
technology and
operations provide
an all-inclusive
perspective at an
engagement level

Design thinking
and Change
Management at the
core of any proposed
solution

Leveraging low-
code/no-code
platforms for MVPs
as part of our
engagements

Consulting Focus Areas

- **Strategic Planning** - Design use-cases, technical and domain related market research, open innovation, agile R&D
- **Operations Management** - Drive business transformation, program management, metrics management/business performance
- **Technology Transformation** - Develop domain solutions prototyping, applied analytics, remote monitoring, risk management in select verticals.
- **Digital Platform Alliances** - Discover industry alignment to post covid-19 era, sustainability goals and industry 4.0+ demands by building a responsive digital ecosystem.

