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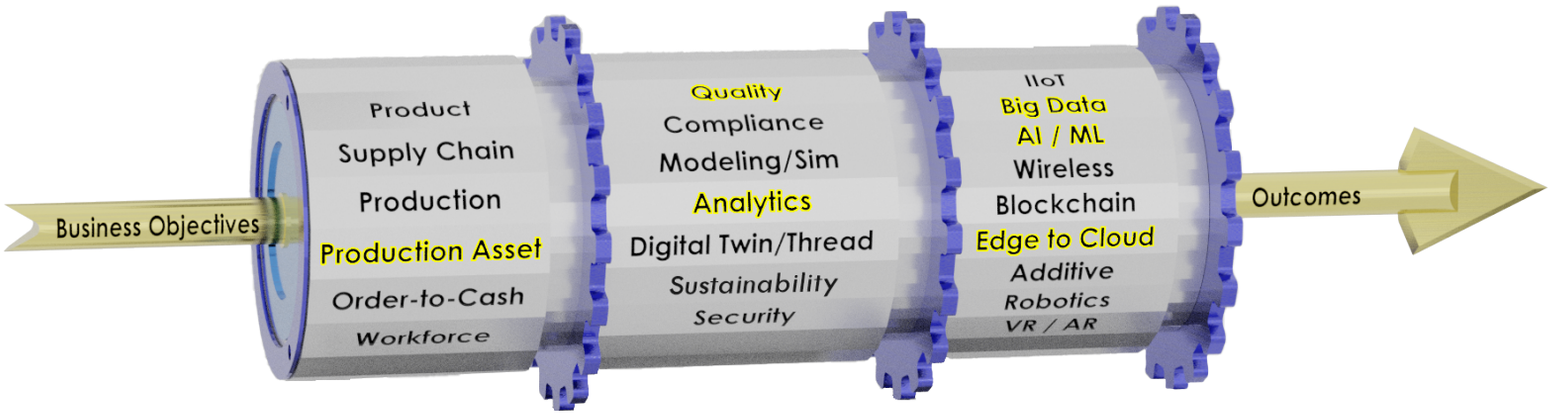
Where Manufacturing Meets IT

INDUSTRY: ALL



Smart Manufacturing Model Use Case #3 | January 2023

SMART ASSET MANAGEMENT

Improve uptime, utilization and reduce maintenance costs by using smart asset management.

SUMMARY

Assets are an important element in the manufacturing eco-system. Smart asset management will maximize utilization and lifecycle as well as help achieve other benefits such as process optimization and quality. It will also deliver intangible benefits such as safety and improved workforce morale.

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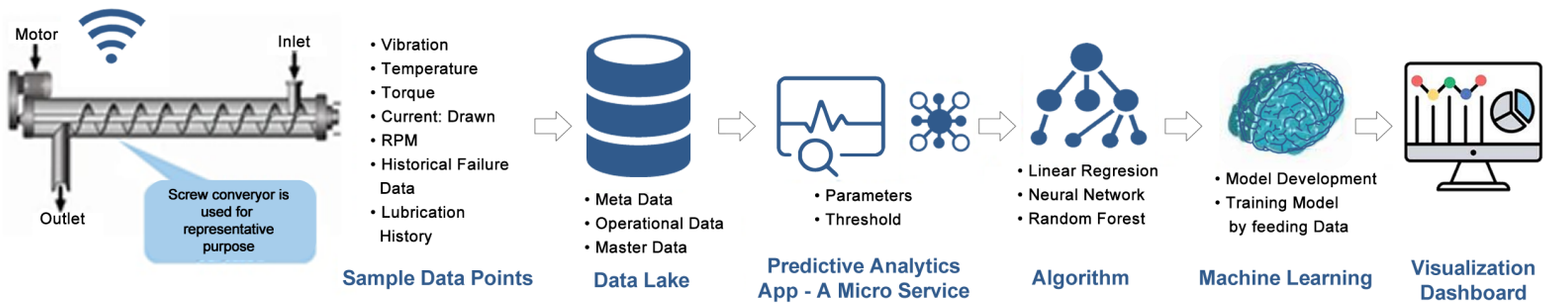
Authored by: Dattaraju Doddi
TATA Consultancy Services

This use case illustrates the combinations of Lifecycles, Cross-Lifecycle Threads and Enabling Technologies as illustrated by the graphic above.

CHALLENGES

- Improve the asset uptime and utilization
- Reduce the maintenance cost and time



Flow diagram for smart asset management realization

SOLUTION

- Monitoring the health of an asset based on real-time operating parameters such as vibration, temperature, current, voltage, torque, etc. from various critical components of the asset and thresholds set up
- Criticality of asset components based on the machine FMEA, past failure data and recommendations from OEM
- Aggregating data and analyzing trends, patterns and interdependences of different components
- Performing descriptive analytics to come up with immediate outcomes such as health index, trends of critical health parameters, etc.
- Persona-based dashboard and reports, alerts to key stakeholders based on the thresholds set up, auto work order generation for asset maintenance, and a plan for spares and appropriate resources for executing the work order
- AI/ML models for assessing the current health index of the assets and predicating the next probable failure; proactively predict failure patterns
- Prescribing corrective actions based on the intelligence from AI/ML models
- Data-driven spare parts planning and management with OEM vendors, including remote assistance for asset maintenance through AR/VR technology, retraining prediction models based on real-time, providing inputs for process parameters optimization to improve process quality, providing interactive work instructions for asset maintenance and data collection, and optimizing maintenance schedules based on the current health index

BENEFITS

Potential OEE improvement by 25-35%

Maintenance cost reduction 20% to 30%

MTBF improvement 30% to 40%

Find additional MESA Smart Manufacturing Model Use Cases at www.mesa.org/model