IBM Maximo Asset Health And Predictive Maintenance

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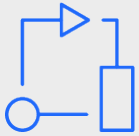Mitch Simon
WW Asset Performance Management Sales and Strategy
Watson IoT

Hani Hadi
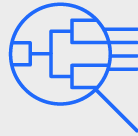*Solution Architect - Presales*
Watson IoT

Watson IoT

Harnessing your own Industrial IoT data and applying AI can help you unlock new business value.

Create new products and services

Improve quality, deliver faster time to market and increase revenue

Maximize operational efficiencies

Optimize performance, to lower costs, increase output, maximize utilization

Launch new business models

Capitalize on new opportunities and generate new revenue streams

Enhance the customer experience

Personalize customer experiences and generate insights into customer needs

Client Drivers for Asset Performance

Operational Drivers
- Eliminate Failures
- Reduce Downtime
- Increase availability/uptime
- Reduce backlog of unnecessary PMs
- Prioritizing work based on Asset Health and Risk
- Increase Overall Equipment Effectiveness (OEE)
- Increase mean time between failure (MTBF)
- Reduce mean time to repair (MTTR)
- Improve first-time-fix-rate (FTFR)

Financial Drivers
- Reduce overall maintenance costs, including emergency maintenance
- Reduce Capital Expense
- Improve Operating Margins
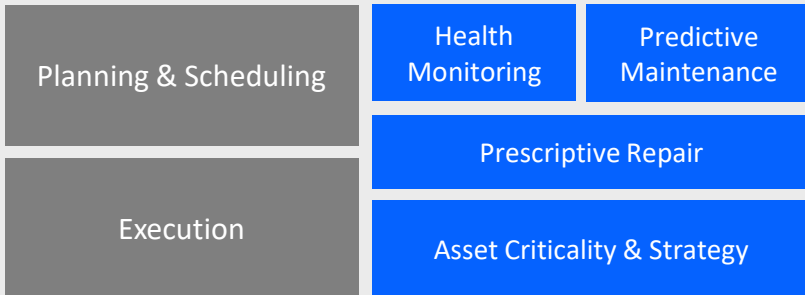

Maintenance and Reliability Flows
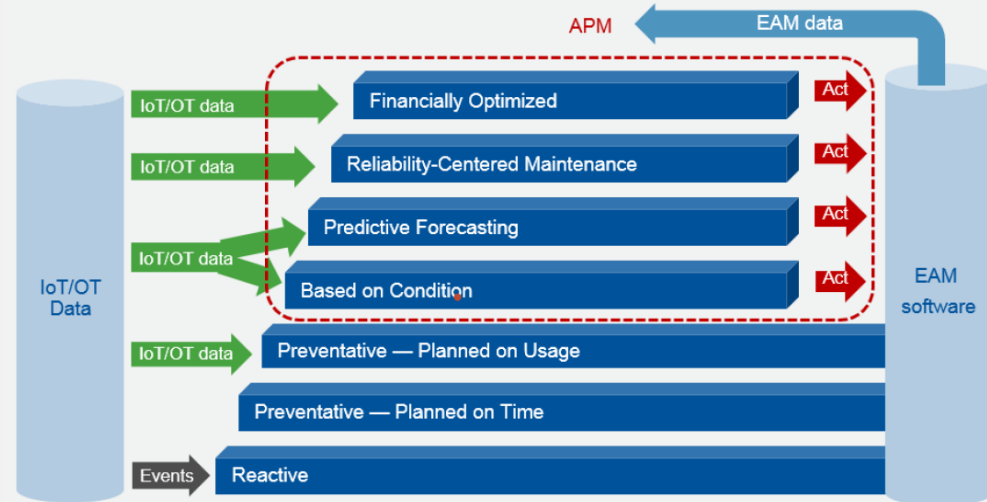
IoT = Internet of Things   OT = operational technology   APM = asset performance management
EAM = enterprise asset management

ID: 327803

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Moving from Maintenance as an Expense to Maintenance as an Investment for Competitive Advantage

Asset Performance Management enhances your EAM foundation with analytics and AI

Planning & Scheduling

Execution

Health Monitoring

Predictive Maintenance

Prescriptive Repair

Asset Criticality & Strategy

Asset Performance Management (APM) is designed for **decision support**

Advanced analytics and artificial intelligence are driving differentiation, helping engineers and planners make better decisions by shifting asset maintenance strategies from preventive to predictive and prescriptive

Enterprise Asset Management (EAM) is designed for **maintenance execution**

EAM enables the day to day execution of asset maintenance and planning activities and provides the asset master data and maintenance history critical for analytics

IBM Maximo Asset Performance Management

Providing insights at the point of action for lower costs, reduced risks, and improved resilience

Health

Maximo APM - Asset Health Insights

Predict
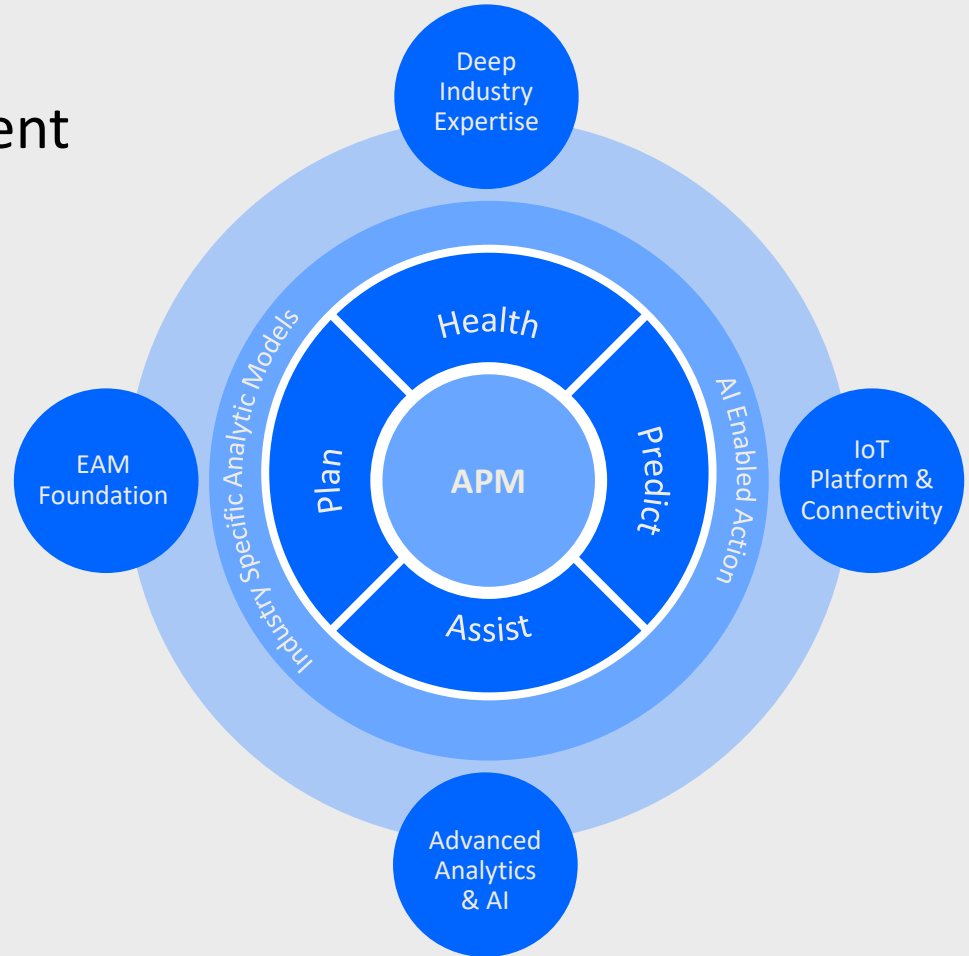
Maximo APM – Predictive Maintenance Insights

Assist

Maximo APM – Equipment Maintenance Assistant

Plan

Maximo APM – Maintenance Strategy Optimization

Deep Industry Expertise

Industry Specific Analytic Models

AI Enabled Action

EAM Foundation

IoT Platform & Connectivity

Advanced Analytics & AI

Health

Predict

Assist

Plan

APM

IBM Maximo APM – Health

IBM Maximo APM - Asset Health Insights

Solution
- Consolidated global view of assets
- Health Visibility and Analysis
- Condition based actions
- Replacement Planning

Capabilities
- Dashboard with cards, map view, spreadsheet view
- Fleet-wide view and health drilldown
- Health based notifications and actions
- Flexible health scoring by asset type or groups
- Sensor data integration
- Job plan efficacy analysis
- Refurbish / replace prioritization

Benefits
- Reduce fleetwide operational risk by focusing on the right assets
- Increase asset availability
- Reduce unnecessary preventive maintenance
- Reduce time to make capital replacement planning decisions
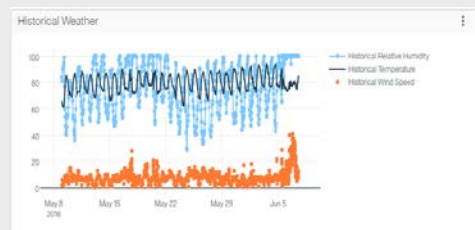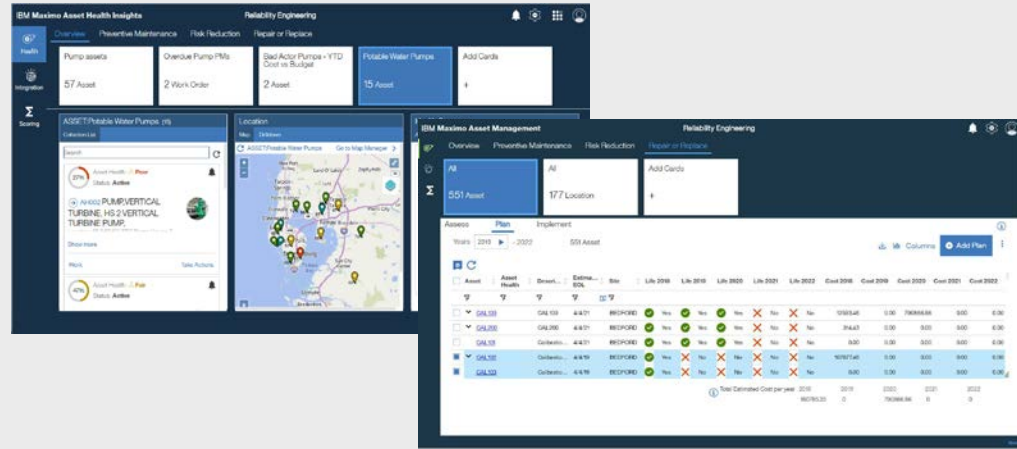
Case Study
Regional Water Utility in NA

Business problem
– Asset Inspection was very manual with a custom application
– Assets are spread over 4 counties in difficult to reach locations
– Only able to inspect assets every 3-5 years
– Did not have an effective capital assessment and planning process

Solution
Maximo APM – Asset Health Insights
– Current condition assessments in real-time using sensor data, augmented by Maximo inspections as needed
– More accurate assessments
– Improved replacement and refurbishment planning decisions
– Eliminated the custom application which was costly to maintain

Business Value Delivered
– Accurate & efficient inspections
– Improved maintenance & replace strategy
– Eliminate costly custom form-based application

Case Study
GM

Business problem
– Maintenance costs total over $1B annually at 140 production sites globally
– Needed to to standardize and implement best practices across sites
– Required consistency in understanding critical asset health, to effectively plan maintenance activities and capital improvements

Solution
IBM Maximo APM – Asset Health Insights
– Real-time asset health monitoring with a score based on meter data, age, and lifecycle costs
– Data-driven approach to prioritizing asset replacement planning
– Seamless integration into IBM Maximo EAM

Business Value Delivered
- Real-time asset insight to asset criticality and replacement strategy
- Optimized preventive maintenance
- Improved MTBF

IBM Maximo APM – Predict

IBM Maximo APM - Predictive Maintenance Insights

Solution
– Build asset failure models
– Predict failures
– Determine factors that contribute to failure
– Score models with current sensor data
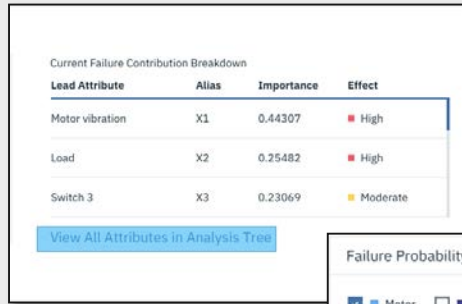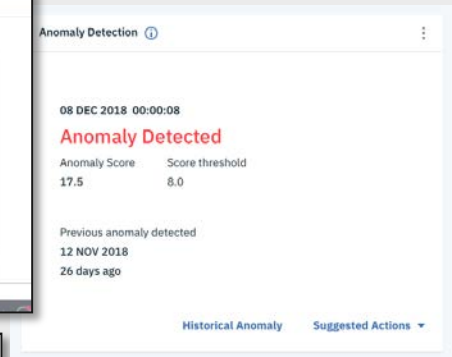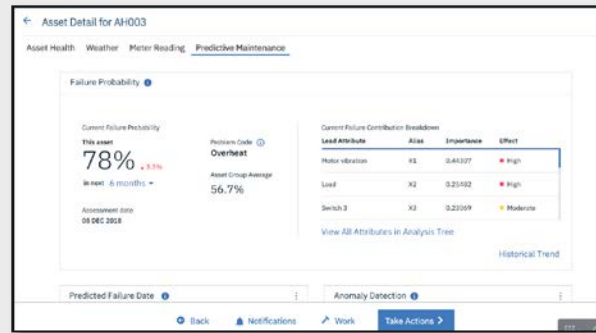– Fault Tree Analysis for Root Cause

Capabilities
– Templates provided to build 5 common predictive models
– Score predictive models using Watson ML
– View pre-built visualizations for the 5 common models
– Maintenance Timeline

Benefits
– Reduced failures
– Reduced maintenance costs
– Improved asset utilization
– Extended life of asset
– Increased production output
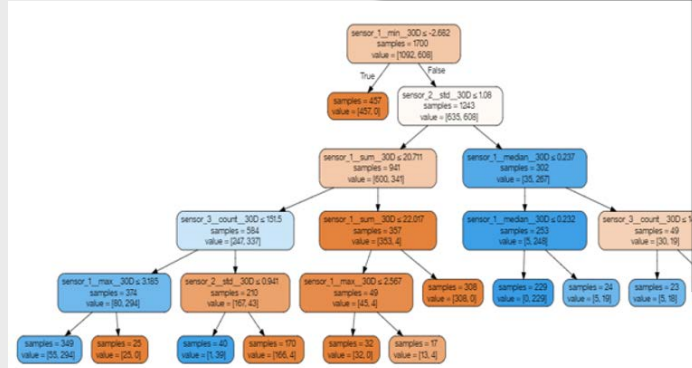
Metropolitan Atlanta Rapid Transit Authority

Challenge: Improve reliability of Tunnel Ventilation System, a critical closely regulated safety issue

Solution: IBM Maximo APM Predictive Maintenance Insights:

- Combines traditional preventative maintenance data, repair data, weather data and machine learning algorithms with intuitive interface and visualizations.
- Allows users to seamlessly move from tracking asset performance KPIs to predicting and preventing asset failures
    - Implements an Asset Condition
    - Survival curves predict Probability of Failure
    - Recommendations made for PM schedules

Overall Model Predictions

- Savings in cost: 18% - 40%
- Savings in labor days: 25% - 50%
- Number of machines affected: 145
- Total number of machines: 208

https://iconsofinfrastructure.com/top-5-infrastructure-projects-leveraging-iot/

Case Study
Sandvik

Business problem

– Wanted to build a platform to provide aftermarket services

Solution

IBM Maximo APM – Predictive Maintenance Insights

Business Value Delivered

- 10% increase in productivity

- Increased field workforce efficiency

- Decreased repair costs

- Improved customer satisfaction

- Increased equipment lifecycle revenue

Case Study
KONE

Business problem

– Needed to streamline the process of servicing 1M+ elevators and escalators globally

Solution

IBM Maximo APM – Predictive Maintenance Insights

– Seamless connection of 100,000 devices during the first 24 months
– Collection of real-time product performance data from global operations
– Actionable real-time insights anticipating issues and planning maintenance schedules,
– Empowers field service teams with prescriptive actions on how to fix or maintain elevators

Business Value Delivered

– Reduced unplanned downtime
– Improved service quality
– Decreased mean time to repair and
– Increased first time fix rate
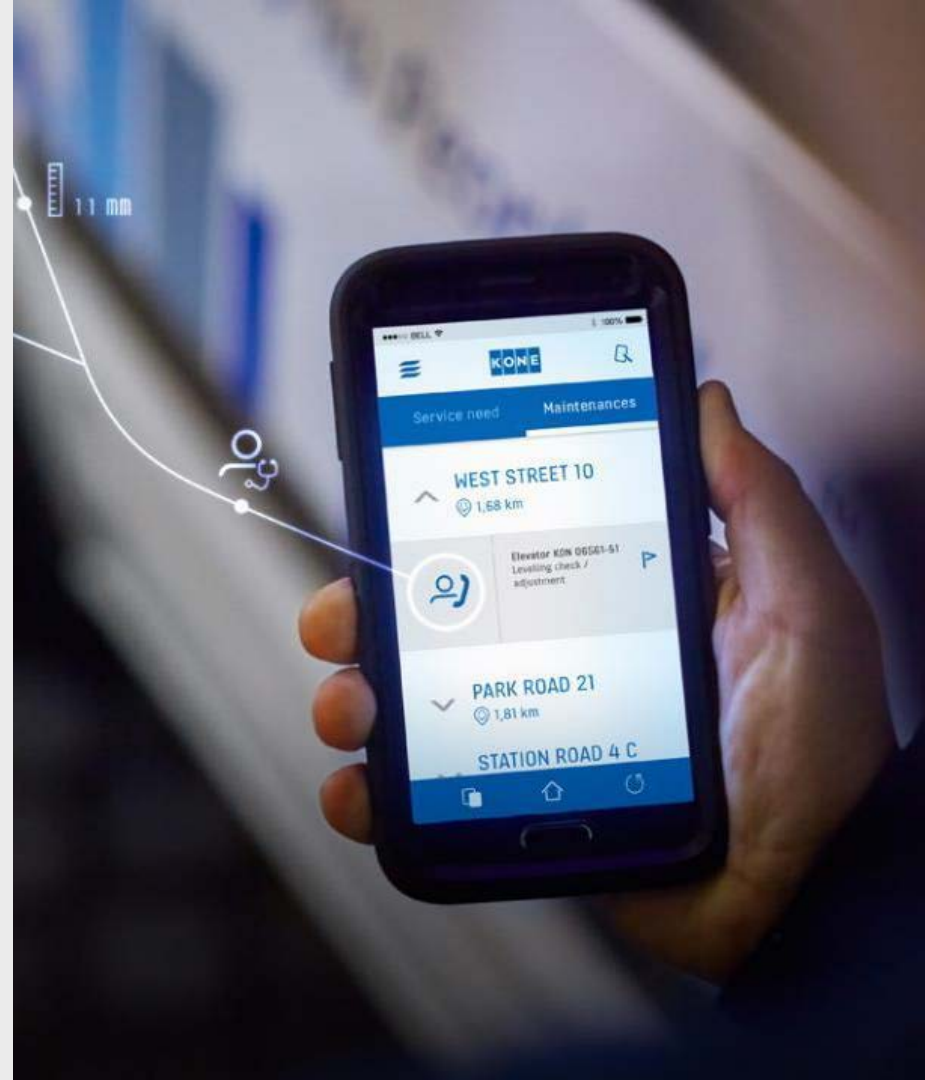
Case Study
US Army

Business problem

– Inefficient maintenance to ensure mission readiness

Solution

IBM Maximo APM – Equipment Maintenance Assistant

IBM Maximo APM – Predictive Maintenance Insights

Business Value Delivered

- $12M annual savings in operational costs

IBM differentiators

Analytics-Enabled Journey
—

Data and AI Heritage
AI, predictive, descriptive, prescriptive and big data analytics capabilities, all in one box.

Applied Analytics
Adapted industry standard models based on the client's unique asset data and expertise. Tailored approach can be used across asset types and classes to enhance your unique advantage.
Pre-built asset models and supporting documentation for out-of-the-box deployments.

Enterprise Readiness
—

Open
We drive openness, transparency & convergence as a foundation.

Agnostic
We support heterogeneous asset and equipment environments without conflict of interest. We don't manufacture assets and we work with any manufacturer asset data. Often, clients even ask us to productize their IP.

Scalable & Flexible
We support global deployments, enterprise-grade security, and deployment flexibility to meet requirements of complex industrial companies.

Recognized Leadership
—

Leadership Where it Matters
IBM's EAM, IoT Platform, analytics, and AI capabilities are best in class – as recognized by clients and industry watchers.

Services Expertise
Our capabilities are underwritten by services expertise that can speed time to value and de-risk deployments.

Moving Forward

Schedule a Workshop

Identify Assets to Get Started

Out of the Box Pilot for APM with Quick ROI

Demonstration