Making smarter asset lifecycle decisions with data from machines

Watson IoT

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Asset Health Topics

Why Asset Health?

What is Maximo Asset Health Insights?

Maximo Asset Health Insights (MAHI) Roadmap

Key Partnerships

Customers and Customer Stories

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Asset Lifecycle Decisions can be Improved…

- Many organizations have more Preventive Maintenance than they have staff to execute
- Unnecessary PMs inflate costs and potentially introduce failures through disruption
- PMs are performed on assets that should be refurbished or replaced
- Replacement of assets based on who screams loudest

40% of preventive maintenance costs are spend on assets with negligible affect on uptime [1]

30% of preventive maintenance activities are carried out too frequently [2]

45% of all maintenance efforts are ineffective [2]

Asset Health becomes a key driver

- To inform maintenance decisions
- To reduce risks associated with failure
- To develop refurbishment and replacement plans

1 Source: T.A. Cook, Maintenance Efficiency Report 2013, August 2013. http://uk.tacook.com/fileadmin/files/3_Studies/Studies/2013/T.A._Cook_Maintenance_Efficiency_Report_2013_En.pdf?tracked=1
2 Source: Oniqua Enterprise Analytics, Reducing the Cost of Preventative Maintenance, http://www.plant-maintenance.com/articles/PMCostReduction.pdf
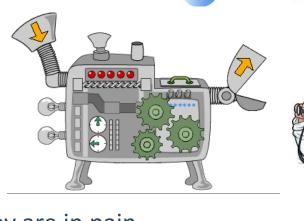
We are doctors
responsible for the health of
our assets

Our assets are patients
who are now telling us when they are in pain

Maximo Asset Health Insights brings Maximo, IoT, and
environmental data together in order to provide a holistic asset
health picture and allow you to take the next best logical action
based on that health picture.

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Why Consider Leveraging Asset Health?

1 Reduce the cost and impact of asset failures

- Identify problems prior to failure
- Perform maintenance while the asset is working to reduce disruptions to operations
- Reduces overtime and expedited parts costs for emergency repair
- Initiate root cause analysis to eliminate future risk

2 Reduce maintenance workload and costs with PM optimization

- Defer unneeded maintenance
- Identify ineffective maintenance strategies and job plans
- Institute preventive maintenance to eliminate corrective maintenance

3 Optimize Capital Investment

- Data driven analysis linking repair, refurbish, and replace
- Includes condition based assessment of remaining useful life
- Enables planning for cost, parts, budgets for asset replacement

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Today there are multiple sources and systems for assessing asset health
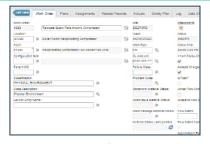

SCADA

Enterprise Historian

Maximo

Capital Planning Spreadsheets

It can take hours to sift through the multiple sources of data to determine the current health of an asset

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IBM Maximo Asset Health Insights

MAHI 7603 Available now

Designed with Reliability Engineers/Asset Owners in mind

Define and Analyze Asset Health using data from many sources including Maximo and Real-time
- Remaining useful life
- Maintenance and failure history
- Asset Condition based on real time and historical information
- Integrated with historical, current, forecast weather

Obtain next predicted failure date through advanced analytics

Subscribe to warnings and notifications for response to Asset issues prior to failure

Minimize unnecessary or ineffective maintenance

Leverage asset health to develop plans for refurbish or replacement.
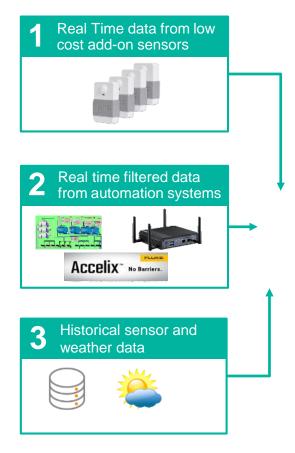
Iot Data Sources
Analytics
Weather

Maximo Asset Health Insights
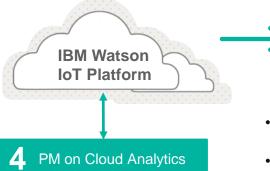
Maximo EAM
Asset Lifecycle Histories

Watson IoT.

Maximo Asset Health Insights can integrate with the IBM Watson IoT Platform

IBM Watson IoT

1 Real Time data from low cost add-on sensors

2 Real time filtered data from automation systems

3 Historical sensor and weather data

- **Contextualizes** device data
- **Monitors** streaming data to detect situations
- **Filters** the data for analysis by Maximo Users
- **Analyzes** the data to predict next failure date
- **Stores** data for further analysis

IBM Watson IoT Platform
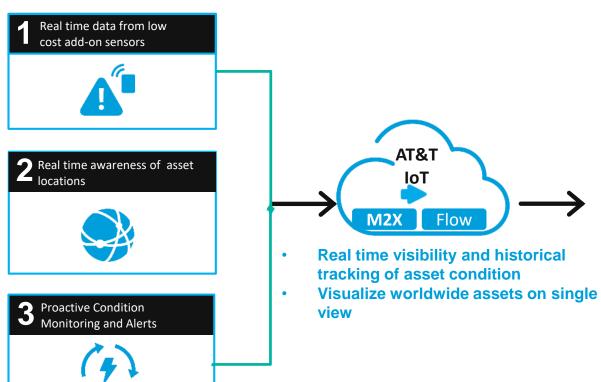
4 PM on Cloud Analytics

IBM Maximo Asset Health Insights

- Enables Immediate action and/or
- Provides engineers with rich set of sensor and asset data to determine proper course of action

- **Visibility into asset condition**, from asset lifecycle perspective
- **Consolidates Asset data**, historical and real-time, including data from external data systems, weather data, etc.
- Work center view enables **proactive asset maintenance** and **capital replacement** decisions

Maximo Asset Health Insights is integrated with AT&T Asset Management Operations Center
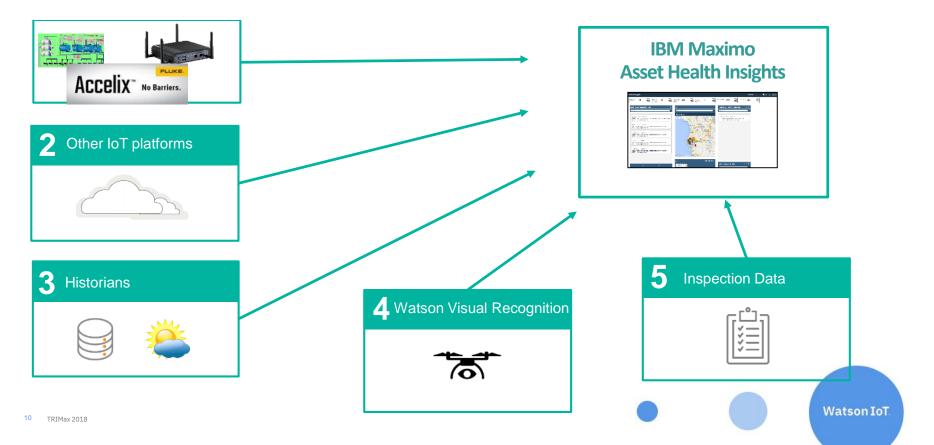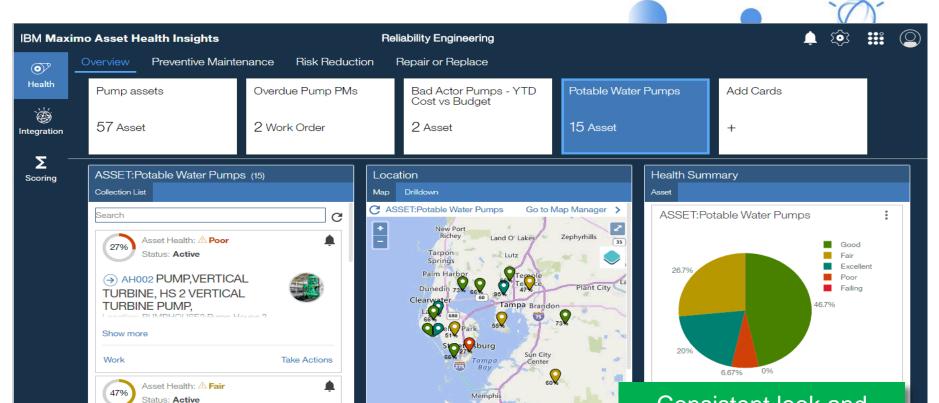
1 Real time data from low cost add-on sensors

2 Real time awareness of asset locations

3 Proactive Condition Monitoring and Alerts

AT&T IoT

M2X **Flow**

- **Real time visibility and historical tracking of asset condition**
- **Visualize worldwide assets on single view**

IBM Maximo and Maximo Asset Health Insights

- Enables immediate action and/or
- Provides engineers with rich set of sensor and asset data to determine proper course of action

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Maximo Asset Health Insights can leverage condition data from other sources as well…

IBM Maximo Asset Health Insights

2 Other IoT platforms

3 Historians

4 Watson Visual Recognition

5 Inspection Data

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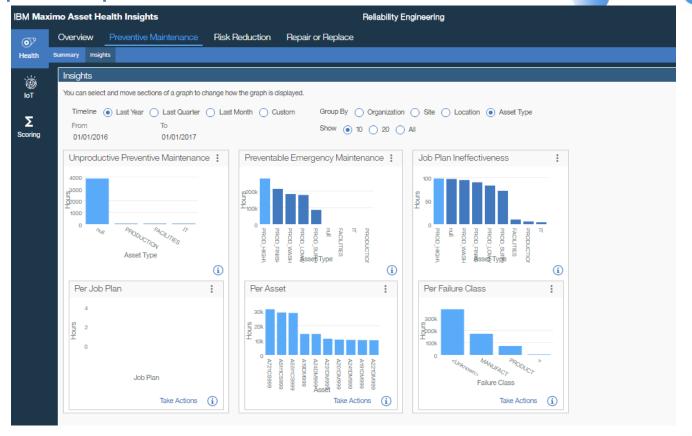Consistent look and interface with Maximo 7.6 Work Centers

Drill into Specific Contextual Data for Assets
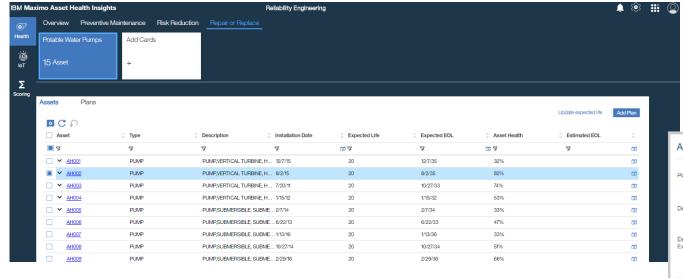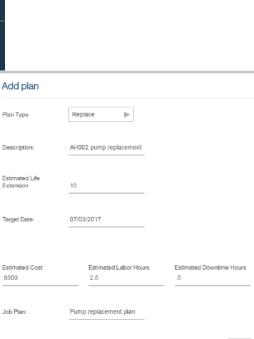
Optimize preventive maintenance

Learn from Asset Health to analyze replacement plans

View Assets along with expected End of Life

Adjust Estimated End of Life based on the actual Asset Health

Develop replacement or refurbishment plans that extend the Estimated End of Life

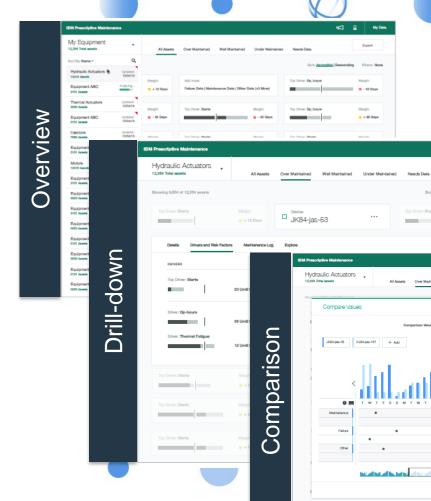# ...In addition, IBM can provide enhanced accuracy and optimization with Prescriptive Maintenance on Cloud

Predictive models which determine likelihood of asset failure and time to failure based on statistical modeling – Shown within the Maximo Asset Health work center!

Identify top failure modes

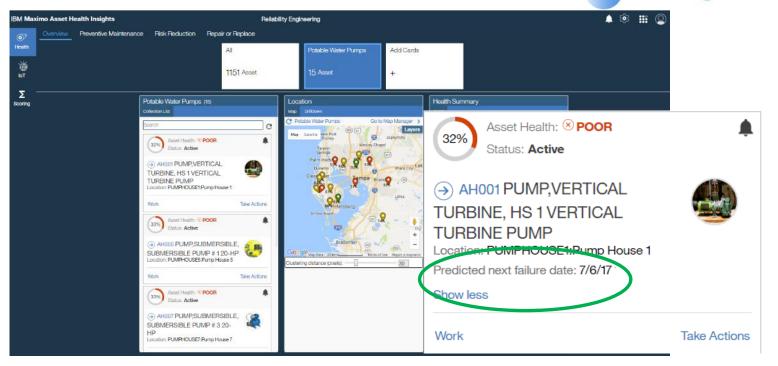Recommended optimal maintenance schedules and maintenance procedures

Ongoing optimization through machine learning and physics based models

15 1 TRIMax 2018 Watson IoT / Insights into

5

Maximo Asset Health Insights 7602 integrates with PM on Cloud

Predictive models which determine likelihood of asset failure and time to failure based on statistical modeling – Shown within the Maximo Asset Health work center!

What's new in MAHI 7.6.0.4 (May 2018)

Sample suggested scoring formulas

- Examples dynamically created based on customers meter data
- Common re-usable elements such as age

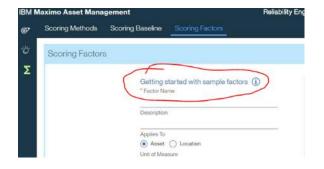**Asset Health enabled replacement planning**

Out of the box integration with AT&Ts Asset Management Operations Center

- Leverage extensive LTE/M network for mobile or geographically dispersed assets
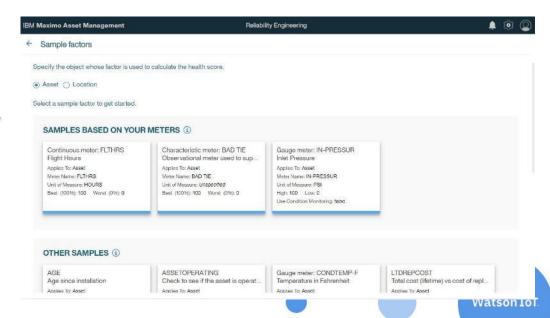- Catalogue of out of the box add-on sensors

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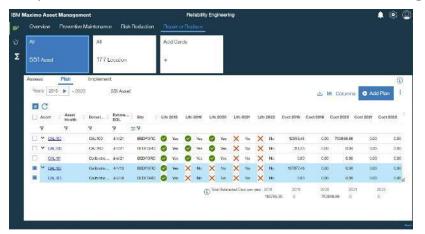- Common re-usable elements such as age

What's new in MAHI 7.6.0.4 (May 2018)

Enhanced replacement planning based on asset health

- Use Asset Health to estimate End of Life

- Plan, visualize and implement 1-5 year replacement plans

- Identify operational and capital costs

- Leverage and track Maximo work orders and job plans for performing the work

- Export to spreadsheet or full Asset Investment Planning solution

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Remote or Roaming Assets

Maximo Asset Health Insights is integrated with
AT&T's Asset Management Operations Center

IBM Maximo and MAHI

- Real time data from low cost add-on sensors
- Real time awareness of asset locations
- Proactive Condition Monitoring and Alerts

- Real time visibility
- Historical tracking of asset condition
- Single view of assets worldwide

- Enables immediate action
- Provides engineers with a rich set of sensor and asset data to determine proper course of action

Extending Maximo Asset Health Insights through key partnerships

SCHAD/Fluke - Automatic Meter Reading for SCADA/PLC integration

AT&T - Asset Management Operations Center for mobile or geographically dispersed assets

OnTracks - OSI PI integration with MAHI

ValuD - Integration with Motors@Work

Sensurion - Drone Inspections and Watson Visual Recognition

MaxGrip - StrEAM+ integration for RCM based analysis, industry asset models and maintenance strategy definition

Daqri - Augmented Reality Headsets for accessing Maximo and asset health information

Asset Health in action

Health of Manufacturing Robot

- Health is based on sensor data, age, maintenance history

- Identifies where more preventive maintenance is needed

- Provides data driven analysis for refurbishment and replacement plans.

Health of a Water Utility Pump

- Health is based on temperature, vibration and maintenance history

- Replaces homegrown system requiring infrequent manual inspections

- Identifies ineffective job plans and PMs

Maximo Asset Health Insights gaining traction in Manufacturing, Oil & Gas, Utilities, Transportation, Distribution

Sample of what we're hearing from clients about Asset Health...

- Bringing all of this data together for the engineer is extremely valuable

- Condition monitoring and CBM are too simplistic – Asset Health gives me the full picture including trends and asset history

- I have a homegrown system for condition assessment that I pay to maintain...
...with MAHI I can replace that with a COTS Maximo application

- I've tried statistical analytics but my data does not yield results – Asset Health gives me a simple way forward based on what I know about the assets

- Capital replacement planning needs to be consistent across the organization and data driven taking into account the health of the assets

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Q&A

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