Using Analytics and AI to Maximize Asset Performance for Energy and Utilities Organizations

Terry Saunders
Worldwide Utilities Industry leader
IBM Cognitive Applications

Etienne Pelletier
Senior Offering Manager
IBM Watson IoT

Watson IoT

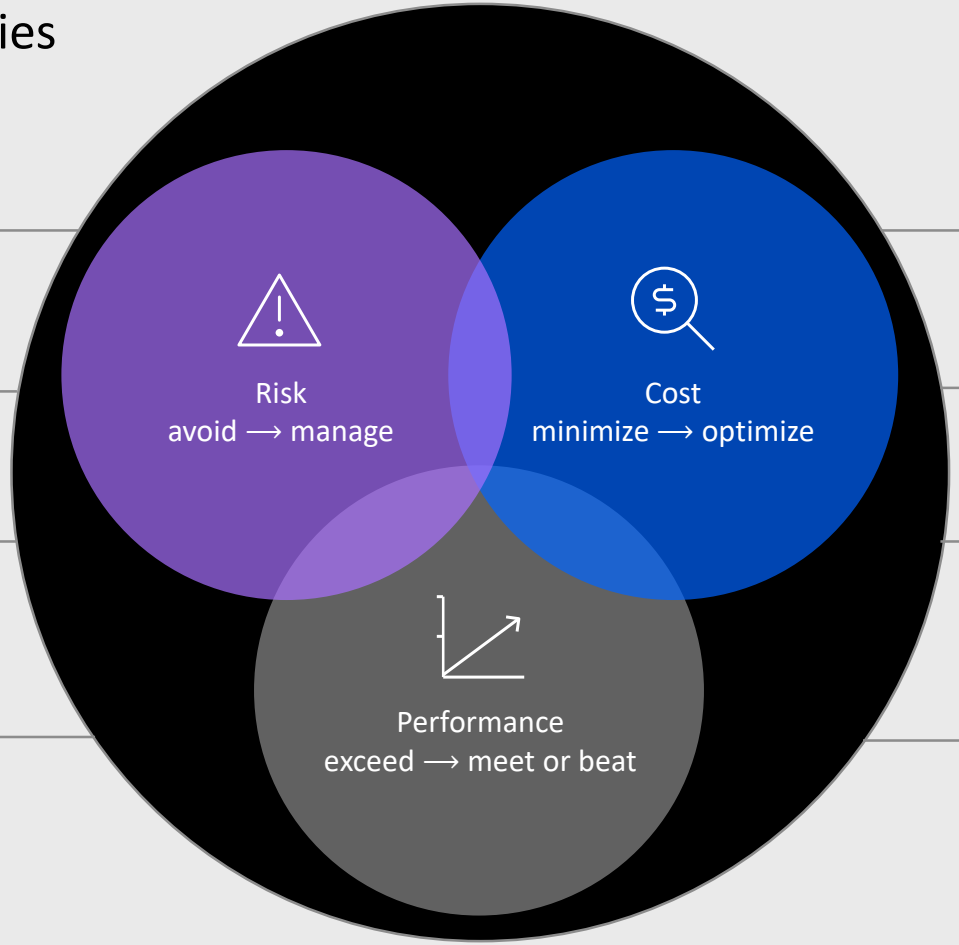
Agenda

– What are the global trends and current approaches to maximizing asset performance management for energy and utility organizations?

– What is IBM doing to leverage advanced analytics and AI in this space–and enable a smart solution?

– What is the real life case study experience?

Current challenges and changes facing utilities



Flattening demand

Reliability

Need for improved customer engagement

Business model disruption

Transitioning workforce

Renewables penetration

Spending justification

Cyber security

All utilities share a common challenge

Deliver reliable safe uninterrupted services at a reasonable cost.

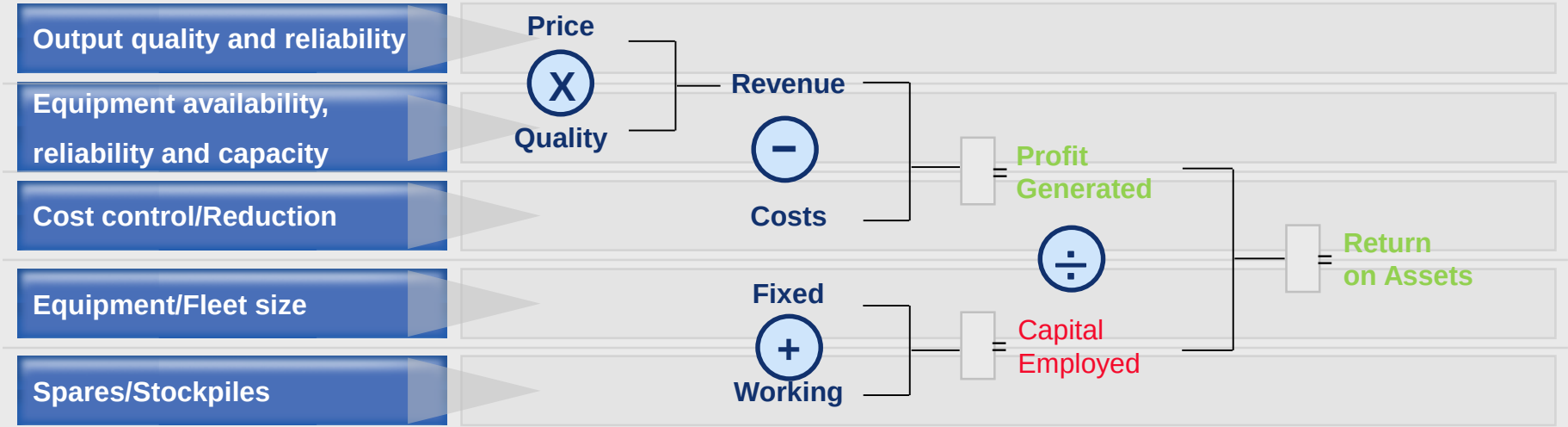
Utilities also share a common risk with their operating infrastructure near where people reside: schools; hospitals; city centers; sub-division; commercial operations and sensitive protective reserves and right of ways. One single catastrophic failure can have extreme damaging effects on financial health; safety; environment; and public image.

Asset Management Strategy guided by visibility of Asset Health and Risk.

Utilities must manage performance and risk.

Concepts of Asset Management…

Asset Management is a coordinated set of activities to realize value. *Asset Management* is about delivering business value and Utilities Assets are directly tied to the revenue stream.



Asset Risk Management & Health Monitoring are key initiatives to deliver value

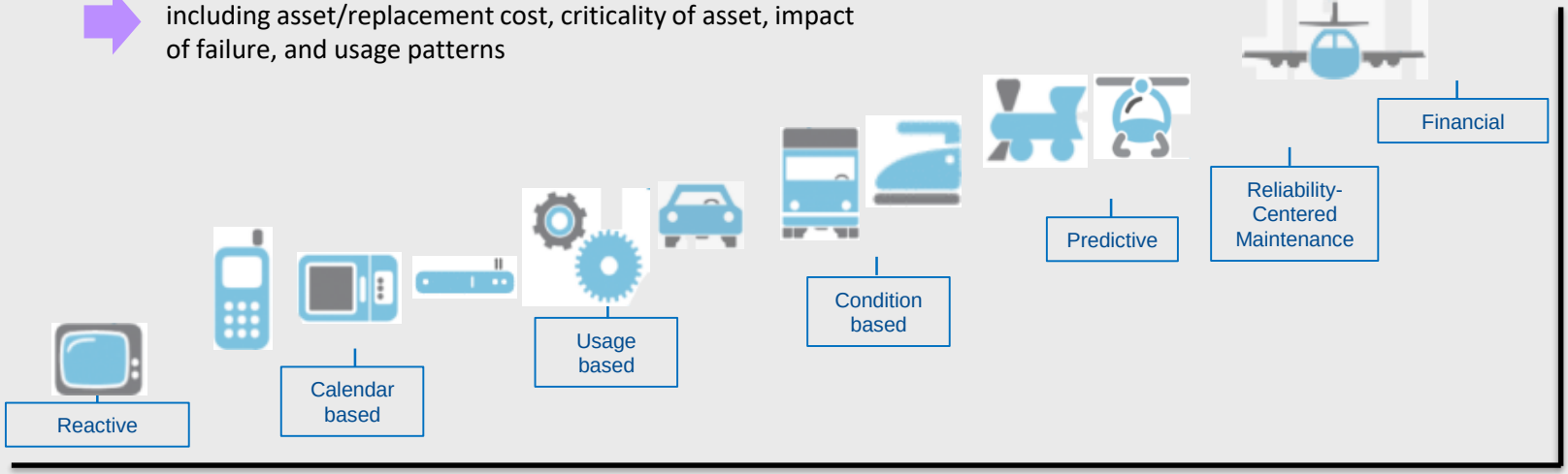
Connect the Asset Management System, Processes and People to the Business Objectives

Maintenance strategies differ by asset class

Asset Management Maturity Model:

Cost Optimization | **Risk Mitigation** | **Financial Optimization**

The asset maturity model changes depending on factors including asset/replacement cost, criticality of asset, impact of failure, and usage patterns



IBM Maximo Asset Performance Management

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 financially optimize decisions by shifting asset maintenance strategies from preventive to predictive and prescriptive

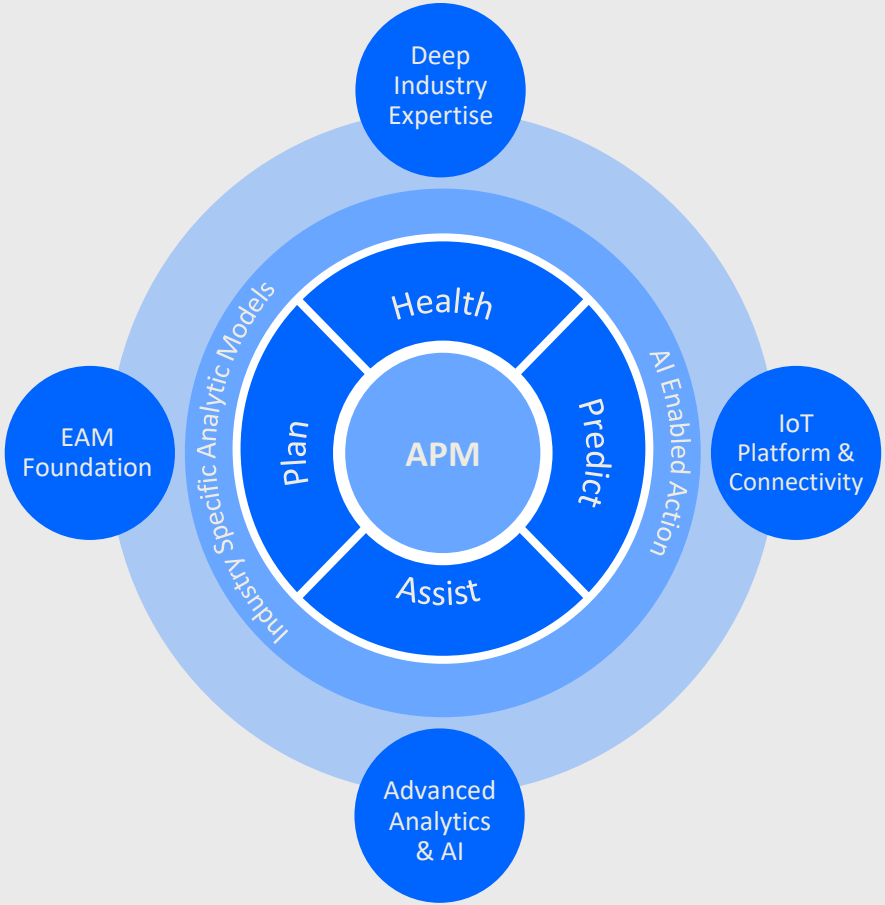
Enterprise Asset Management (EAM) is designed for **maintenance execution**

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

Asset Performance Management

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



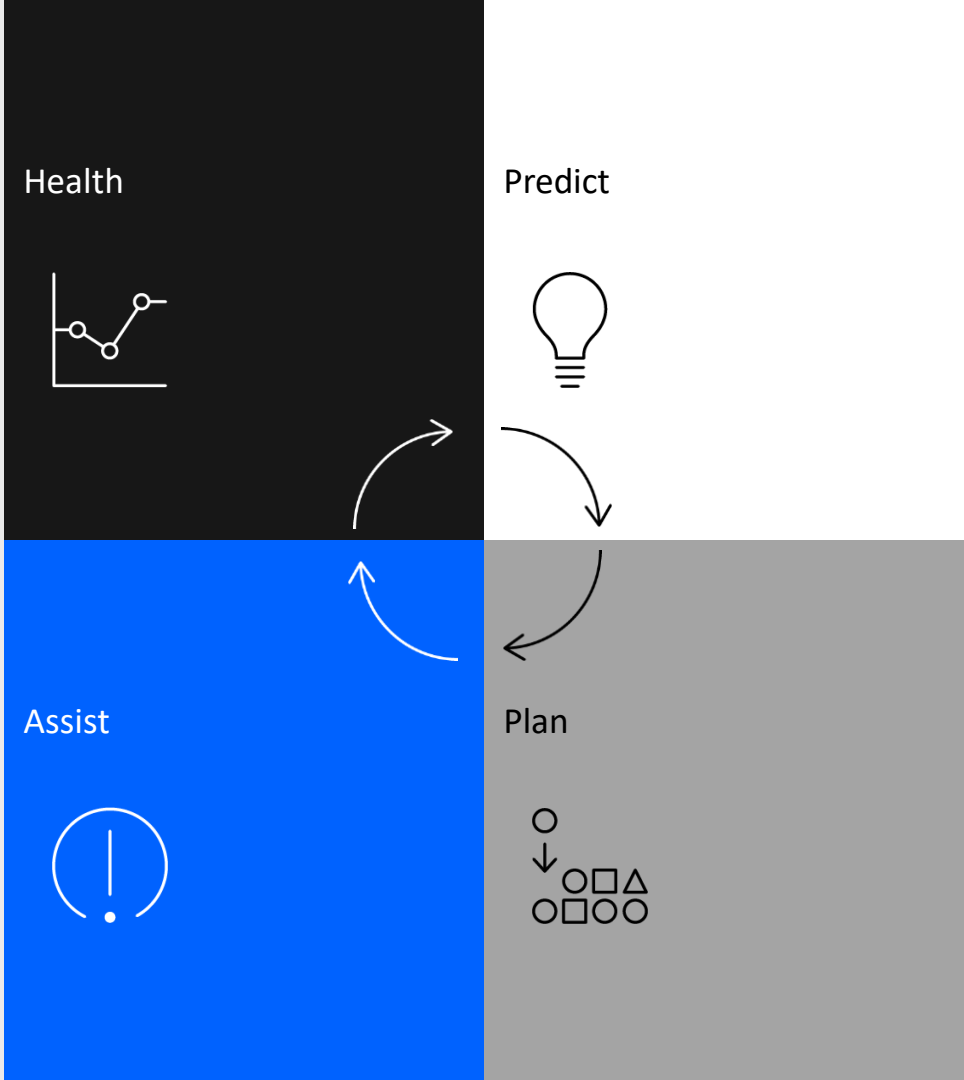
IBM Maximo Asset Performance Management

APM finds assets in need of attention and recommends actions

Integrating disparate data sources and developing actionable insights across the business for financially optimized asset decisions

23%

average reduction in operational maintenance costs through prediction



Keys to successful APM deployments

Deep Industry Expertise

Industry-specific knowledge accelerates product innovation and speeds time to value for customers. Includes expertise, learnings, data models, and knowledge bases to expand solutions quickly to solve domain problems

IoT Platform

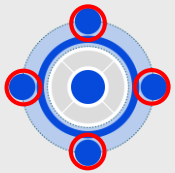
Connectivity through IoT Platform enables data aggregation and processing of asset data with extraneous data about asset condition – often in real-time

Advanced Analytics and AI

Analytics suite with AI functionality. Asset monitoring with maintenance history and failure data enables predictive maintenance and AI-driven prescriptive guidance

EAM Foundation

Asset visibility through management of physical assets based on common hierarchies, maintenance histories, and failure data tracking across the lifecycle



IBM Maximo APM for Industry

Beginning with E&U, tailored APM with pre-built models, dashboards, and use cases

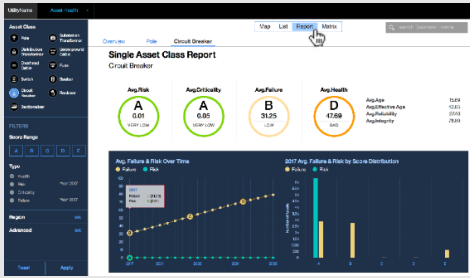
Out of the box analytic based applications

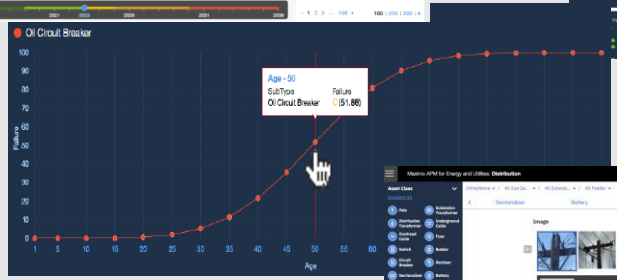
- Risk & criticality scoring, health scoring and degradation models
- Pre-built advanced analytic models based on industry standards
- Extensible by customers and business partners

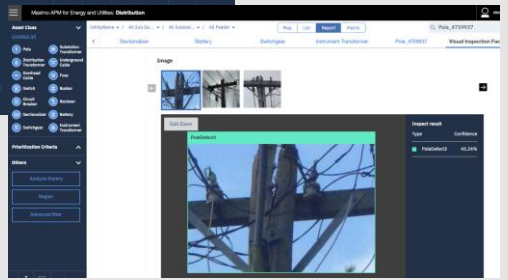
APM for E&U includes an integrated platform and analytics tooling

- Utility data model
- Weather & Cognitive API's
- On Premise and On Cloud
- Pre-integrated with Maximo

Note: Maximo APM for E&U is available today. Other industry-specific modules to follow.







Case Study
EU Transmission Operator

Business problem

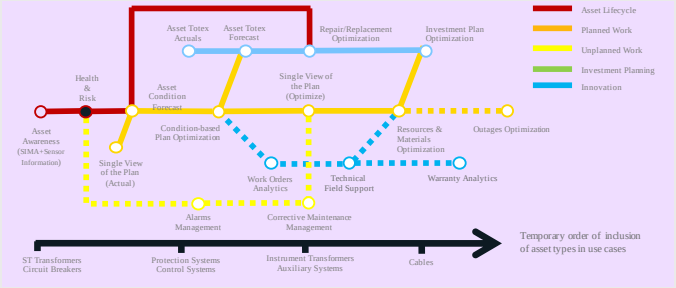
The utility created a 3 year program for Intelligent maintenance for substations, to optimize substations asset maintenance, while maintaining the same level of service, security and availability of the transportation grid.

Solution

IBM Maximo APM for E&U for transformers (400) and Circuit breakers (5700)

Initial use cases: Situational Awareness, Asset health and Network Risk, Maintenance Planning optimization

This roadmap reflects the high level priorities identified through the work sessions. It also shows how capabilities grow incrementally through the 5 work streams.



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