MAINTAINING THE HEALTH OF YOUR MOST CRITICAL ASSETS WITH EAM AND IOT

July 2017

Increasingly, Enterprise Asset Management (EAM) technology is allowing Best-in-Class firms to listen and respond to their assets via analytics, insights, and recommendations that reduce asset downtime.

Predictive vs. Preventive Maintenance:

Preventive Maintenance is a time-based maintenance function which relies on average or expected life statistics to routinely maintain machinery even if there are no known reasons for doing so. While convenient, preventive maintenance's heavily regimented schedule may result in unneeded repairs as well as costly equipment shutdowns.

Predictive maintenance uses technology to evaluate the current condition of machinery to determine when maintenance is required. More and more maintenance professionals are turning to predictive maintenance to ensure the reliability of their operations due to its economic, budgetary, and scheduling advantages.

Across almost every asset-intensive industry, organizations are challenged to track, assess, and manage assets efficiently. Ensuring asset health is (and should be) a high priority for Best-in-Class firms, who are 37% more likely than All Others to run enterprise asset management (EAM) solutions. EAM allows organizations to ensure asset health, by listening to, and learning from, enterprise assets. It also improves operational efficiency, through enhanced analytical insights and recommendations, for preventive and predictive maintenance.

Operational Efficiency Pressures Drive the Use of EAM

Top-performing firms are driven by their need for operational efficiency. This phenomenon is perfectly illustrated by the simultaneous need for cost reduction in production and, at the same time, the need to drive revenue growth. To top it off, mass-produced, individually configured products must be delivered in an environment, rife with last minute order changes, where time-to-market is at a premium.

Driven by the need to execute flawlessly and improve operational efficiency, Best-in-Class firms are turning to enterprise asset

Definition: Best-in-Class

The Aberdeen maturity class framework places companies in one of three categories based on their self-reported performance across key metrics:

- Best-in-Class: Top 20% of respondents based on performance
- Industry Average: Middle 50% of respondents
- Laggard: Bottom 30% of respondents

Sometimes we refer to a fourth category, All Others, which combines Industry Average and Laggard organizations.

Based on their performance, service leaders might fall into any of the above groups. The Best-in-Class findings represent the performance results all leaders should strive to achieve.

management solutions. By definition, flawless execution requires outstanding asset health (reliability, availability, serviceability) and real-time visibility into factors that influence asset performance. An EAM solution is key to meeting this goal, and is arguably the best means to utilize the Internet of Things (IoT), as well as advanced analytical and cognitive technologies to improve asset health and keep the whole plant healthy.

EAM's overarching goal is to improve asset health via asset reliability and availability, so that unplanned downtime is minimized. The cost of unplanned downtime can be devastating, ranging from an estimated $10,000 to $250,000 per hour for industrial plants.

Unplanned downtime is a major source of additional costs and inefficiencies in any organization. Unplanned downtime also involves many chained dependencies, and these extra costs add EAM capabilities enable the servicing or repair of devices before they fail and negatively impact operational efficiency or safety. In addition, analytical insights enabled by EAM for preventive / predictive maintenance lower maintenance costs while mitigating operational risk.

EAM Drivers: The Best-in-Class Listen to Their Assets

Recent Aberdeen research ranks equipment reliability control, device failure understanding / device efficiency improvement, and asset maintenance improvement as the top drivers for EAM among Best-in-Class firms (Figure 1, next page).

Additional EAM drivers highlight the importance of asset monitoring. While modern EAM systems let you listen to high-risk equipment, no matter where the data comes from (a data historian system, for example), EAM solutions increasingly incorporate IoT to enable a new level of real-time visibility into physical and digital assets. IoT lets your assets "talk" to you, providing streaming data and real-time visibility to assets. This

visibility imparts the ability to monitor serviceable assets, with an eye toward predictive analytics and predictive maintenance.

Figure 1: EAM Drivers
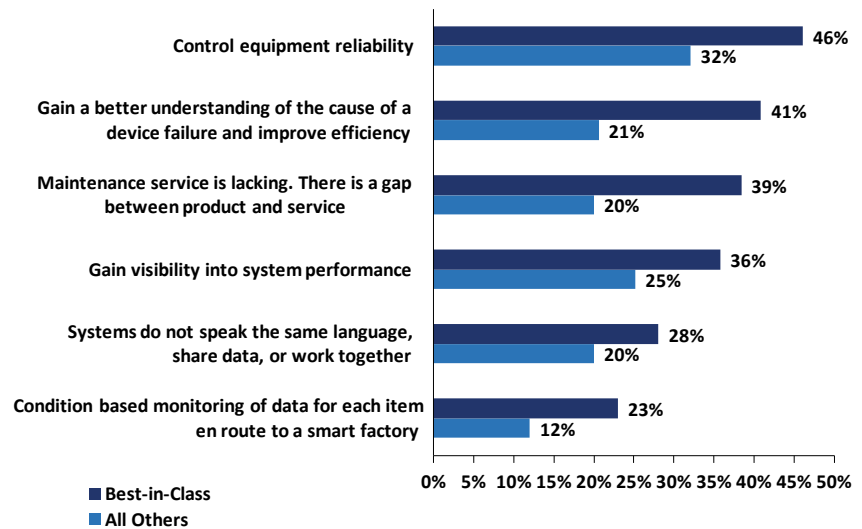
Source: Aberdeen Group, July 2017

Best-in-Class firms who monitor their assets via EAM are:

➔ 44% more likely than All Others to be driven by the need to gain visibility into system performance.

➔ 40% more likely to be driven to connect systems that do not speak the same language, share data, or work together. This is an ideal application for IoT, which allows asset data to be exchanged via predefined streams.

➔ 74% more likely to view asset status via real-time / event-driven operational dashboards, with role-based data accessibility, navigation, aggregation, or drill down to identify problems.

Lastly, Best-in-Class firms are almost twice as likely as All Others to see EAM's capabilities for condition-based asset monitoring as a driver. Also, Best-in-Class organizations are 2.2 times more likely to implement automated alert capabilities based on defined asset conditions.

EAM provides valuable insights that help prevent asset downtime, letting you focus on identifying high-risk equipment critical to operations.

Definition: Cognitive Computing

Cognitive computing, broadly speaking, describes technology platforms that are based on the scientific disciplines of artificial intelligence and signal processing. These platforms encompass machine learning, reasoning, natural language processing, speech and vision, and human-computer interaction, as well as dialog and narrative generation, among other technologies.

Learn From Your Assets via EAM

While EAM capabilities enable your assets to talk to you, the ability to learn and act on this dialogue is just as critical. EAM enables this by converting data into actionable insights into improved asset health via preventive and predictive maintenance.

EAM provides valuable insights that help prevent asset downtime, letting you focus on identifying high-risk equipment **critical to operations**. This enables you to identify tradeoffs between risk and cost, and to institute corrective and preventive actions (CAPA) to preserve and enhance asset health.

By combining traditional asset health analytics with IoT sensor analytics and cognitive computing insights, EAM provides immediate insights for asset health and optimal preventive maintenance. As organizations progress up the maturity curve, EAM also guides them from preventive maintenance to predictive maintenance. Predictive maintenance is ideal, because it focuses on monitoring and correcting the root causes of failure — long before asset breakdown occurs. It helps reduce costly asset downtime by ensuring maintenance is performed exactly (and only) when needed. Ideally, this function should be automated if possible, and the rise of cognitive computing technologies provides just such an opportunity in EAM solutions.

Cognitive computing systems are well-suited to predictive maintenance because they are probabilistic, can make sense of large amounts of information, and can make suggestions on how an asset may fail as well as the most effective means to remedy the problem. Best-in-Class firms embracing such advanced analytics are:

➔ 89% more likely than All Others to implement predictive analytics.

➔ 61% more likely to implement big data analytics.

➔ 2.3 times more likely to implement asset performance management.

EAM solutions are beginning to employ cognitive technology with the goal of solving asset problems by enhancing human expertise. Aberdeen research also finds one other bonus benefit of the use of cognitive technology: its positive effect on customer satisfaction and the customer experience.

Summary: EAM for Asset Health: Listen and Learn

Top-performing firms are driven by their need for operational efficiency and asset health. EAM solutions play a key role in this effort by providing key capabilities to reduce risk and unplanned asset downtime while contributing to asset health and reliability.

EAM lets you listen to your assets and learn from them via a combination of traditional asset health analytics with IoT sensor analytics and cognitive computing insights. This mix provides immediate insights into asset health and optimal preventive and predictive maintenance.

The impact of this unique combination of listening and learning, solidifies EAM's value proposition for improved asset health and operational efficiency via decreased asset downtime. EAM not only steers you in the right direction, it allows you to identify asset problems, pursue corrective actions to prevent those problems, and focus your maintenance investment on the right asset at the right time. This combination of benefits is hard, if not impossible, to beat.

Author: Greg Cline, Research Analyst
Manufacturing, Product Innovation & Engineering

ABERDEEN
GROUP