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APM Accelerator Solution for a Proactive Maintenance Workforce

Summary

Leaders achieve their business goals by building a proactive workforce through improvement programs, adoption of best practices and by leveraging data from connected assets and advanced analytics, and machine learning. Asset Performance Management (APM) is an approach to better managing assets by prioritizing "digitalization" to improve business and production goals through Industrial IoT. Modern APM solutions help manufacturers by supporting workforce efficiency improvements, supply chain challenges or customer-driven production intelligently and sustainably by improving asset reliability and availability. APM combines new technologies, such as cloud, data analytics, and intelligent connected assets, and creates an ecosystem of partners and best practices.

While APM benefits are well known, many industrial companies struggle to scale APM across plants, facilities, and enterprises due to resource constraints and internal capability. The impact of resources on the scalability of APM is undoubtedly compelling; it is helpful to consider the underlying data, technology fit the industry and application, and how they prepare and align the organization responsible for scaling and sustaining the APM system. Strategic Maintenance Solutions (SMS) has developed an approach to rapidly scaling APM. SMS's Accelerator Solutions enable industrial customers to quickly deploy and see value from the solution by building competency in maintenance and operations and leveraging the power of Industrial IoT.

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The Challenge for Process Manufacturers

Process manufacturers, including those in oil & gas, energy, and mining, are under relentless pressure to better manage operations. Recent mandates in environmental social and governance (ESG) and sustainability combined with unprecedented swings in demand and supply chain disruptions have directed industrial organizations to look closely at industrial operations. Particularly in maintenance and operations, there is an opportunity to improve profitability while increasing asset uptime, reducing energy costs, and improving worker efficiency.

Leaders achieve their business goals by building a proactive maintenance operations workforce through improvement programs and adoption of best practices.

Key priorities for all industrial companies include doing what's right for customers, shareholders, employees, and the public while maintaining their social license to operate. For most the primary objective is to deliver products competitively while figuring out how to do this with a changing global energy mix to help meet carbon reduction targets. Leaders achieve their business goals by building a proactive maintenance operations workforce through improvement programs and adoption of best practices. The process industries have looked to Asset Performance Management (APM) to help foster an uptake in adoption and adherence to business processes and create an overall asset strategy accelerated by digital tools.

Industrial Organizations Turn to Asset Performance Management (APM)

Asset Performance Management (APM) is an approach to better managing assets by prioritizing "digitalization" to improve business and production goals through Industrial IoT. APM helps industrial companies achieve improvements in asset availability and uptime, higher revenue and profitability while improving customer satisfaction with on-time delivery and quality. APM combines new technologies, such as cloud, data analytics, and intelligent connected assets, and creates an ecosystem of partners and best practices.

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APM optimizes the performance of physical assets in their operating ecosystem. APM typically employs a digital thread throughout the asset life cycle, supporting digital twins for assets or asset groups, supporting connected workers, and maintaining a network of parts and service providers. By leveraging data from connected assets and applying digital models, advanced analytics, and machine learning, modern APM solutions help manufacturers by supporting workforce efficiency improvements, supply chain challenges or customer-driven production intelligently and sustainably by improving asset reliability and availability. Even though APM benefits are well known, many industrial companies struggle to scale APM across plants, facilities, and enterprises due to resource constraints and poor digital adoption. Teams have difficulty understanding the potential of digital technologies to drive innovation and leverage them for a competitive advantage. Often the end user fails to recognize the benefits of adopting a new workflow or process and adapting to a digital-first culture and mindset.

The of impact digital culture and mindset is undoubtedly compelling. It is helpful to consider the underlying data, technology fit the industry and application and how they prepare and align the organization responsible for scaling and sustaining the APM system. A few factors are essential when scaling out APM, such as change leadership, organizational change, and guidance to lay the foundation and ensure that plans are in line with management priorities.

Strategic Maintenance Solutions

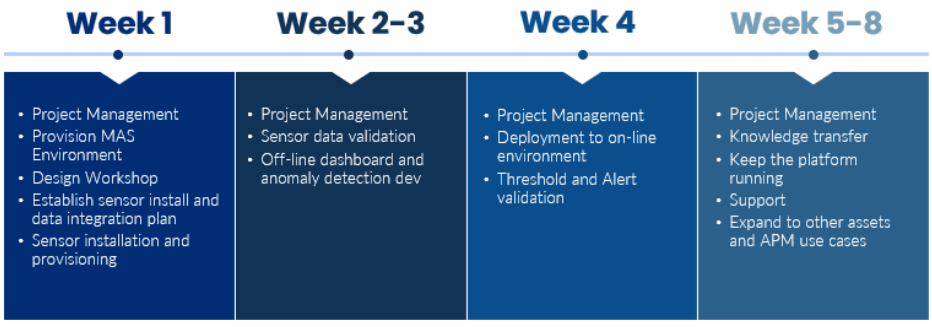
Strategic Maintenance Solutions (SMS) is a system integrator employing more than 150 employees and specializes in Asset Performance Management software and services. SMS is Headquartered in Gorham, Maine with field offices in New York and Texas. The company has APM solutions experience in 16 countries and with the help of partners such as IBM, SAP, Infor, and Splunk have completed more than 1,000 projects. SMS boasts capabilities

in asset intensive industries of maritime, life sciences, oil and gas, manufacturing, power generation and transmission and distribution to deliver:

- EAM implementation
- Connected maintenance
- Predictive maintenance
- Reliability consulting
- Sensor installation
- IoT Connectivity and Communications

The Strategic Maintenance Solutions (SMS) APM Accelerator

Strategic Maintenance Solutions (SMS) has developed an approach to rapidly scale APM. SMS's Accelerator Solutions enable industrial customers to quickly deploy and see value from the solution by building competency in maintenance and operations and leveraging Industrial IoT. This IBM Cloud-hosted turnkey solution includes sensors and the services and templates required to quickly scale out the sensor design, roll out work process change, and maintenance alerts. A typical APM Accelerator project is 5-8 weeks and includes a design workshop, sensor provisioning, the work process definition and threshold alert validation, and the tools to scale APM to other asset and system use cases.



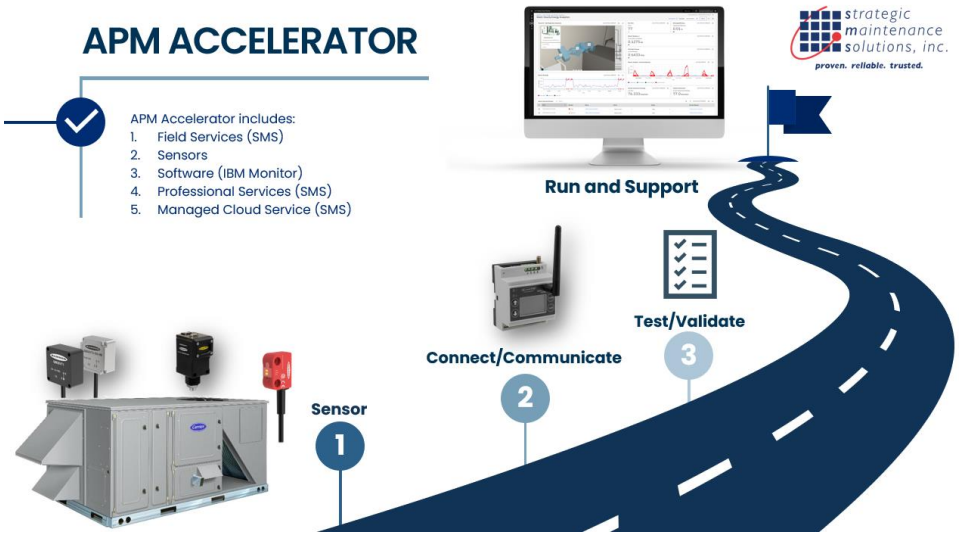
APM Accelerator Solution Project Timeline

The APM Accelerator solution includes SMS domain expertise, templates, and services to guide the design and installation of IoT sensors and the Edge Gateways. This approach provides the tools

necessary to deploy the Maximo Application Suite (MAS) with the Monitor App and accompanying dashboards and to build smart-maintenance alerting and notifications using SMS's rapid implementation approach.

The communication & application architecture is supported by the Industrial IoT Edge. The Industrial IoT edge is where physical devices, assets, machines, processes, and applications intersect with modern internet-enabled portions of the architecture (example MQTT). Industrial IoT edge devices provide input to, and may receive output from, industrial internet-enabled systems, applications, and services, but reside outside of clouds and data centers.

The APM Accelerators also include the hardware necessary to perform predictive maintenance once the sensor data is analyzed in the IBM MAS Monitor application. SMS commonly uses sensors for pressure, vibration, temperature, and current to allow proactive monitoring to predict failures on assets like motors and compressors or to monitor energy usage based on the electrical load of the asset.



APM Accelerator – What's in the box

Conclusion

Asset Performance Management is far more than improving the asset utilization or uptime. APM brings the promise of proactive management to assure optimal performance of all aspects of operations through work process improvements with the help from Industrial IoT.

Asset Performance Management (APM) is an approach to better managing assets by prioritizing business and production goals through Industrial IoT. APM helps industrial companies achieve improvements in asset availability and uptime, higher revenue and profitability while improving customer satisfaction with on-time delivery and quality. APM combines new technologies, such as cloud, data analytics, smart connected assets, and creates an ecosystem of partners and best practices. The Strategic Maintenance Solutions (SMS) approach to rapidly scaling APM using their Accelerator Solutions enables industrial customers to quickly deploy and see the value by building maintenance and operations competency. Customers using the APM Accelerator Solutions benefit from:

- Increased time to value with APM technology
- Reduced maintenance cost
- Lower frequency of asset failures
- Increase asset availability and reduction in equipment downtime
- Optimized maintenance workforce to prioritize maintenance and replacement
- Reduce time to make capital replacement decisions
- Reduce energy costs
- Improve asset usage planning
- Synchronizing asset maintenance with production
- Predict Asset Failures

Asset Performance Management is far more than improving the asset utilization or uptime. APM brings the promise of proactive management to assure optimal performance of all aspects of operations through work process improvements with the help from Industrial IoT.