OCTAVE

EBOOK

Better together: How EAM and APM support OEE

Many manufacturing companies leave value on the table by not connecting enterprise asset management (EAM) with asset performance management (APM). While distinct, both have related goals that directly improve overall equipment effectiveness (OEE)–a key measure of how efficiently operations perform (scheduling, performance, quality) compared to its full potential. It identifies the percentage of manufacturing time that is truly productive.

OEE = Availability x Performance x Quality

When combined, EAM and APM create a more stable foundation across machines, labor and materials. By reducing risk and overhead costs, manufacturers can increase production capacity, operational resiliency, safety and revenue.

APM and EAM: Stronger together

EAM and APM bring together the processes, people and technology needed to manage maintenance. Each supports OEE metrics, but from different paths. EAM provides the operational foundation, managing daily and routine maintenance, performance history, parts usage and expenditures. APM builds on that foundation by predicting associated risks that would not only undermine an asset's performance but also decrease its value.

Here is a visual we have that shows how EAM and APM can work together to operationalize an asset strategy.

EAM spans the full asset lifecycle from commissioning through decommissioning, with a primary goal of extending equipment life. EAM also includes labor scheduling, usage and performance tracking. All of this data is typically stored within a single system of record. Information from ancillary platforms like purchasing, enterprise resource planning (ERP), building automation systems and inventory management may also be relevant. Accordingly, EAM is far more robust and comprehensive than an entry-level solution like a CMMS (computerized maintenance management system) because it offers a wider range of capabilities and greater scalability.

"It's important to recognize that EAM can be applied to a wide range of assets," explains Brian Tilley, executive industry consultant for Octave. "It covers individual items, from the smallest valve and motor to an entire production line. It is also used for everything within an entire building and the facility itself as well as the entire property portfolio. EAM can even account for linear assets like roads and railroad tracks, including all related mobile assets."

APM, an analytical layer that integrates with EAM, is designed to ensure assets operate predictably at the optimal cost. It is a long-term planning tool that protects the total cost of ownership (TCO). It accomplishes this by identifying risks based on an asset's most pressing maintenance needs, especially those that could lead to risk. Additionally, APM helps organizations prioritize where to allocate funds across their high-priority assets.

"The beautiful thing about EAM and APM is that they work in tandem. Organizations can use EAM to manage assets efficiently while leveraging APM to inform the strategies that will extract optimal value from those assets."

Rachel Wagner
Senior Account Manager of Portfolio Strategy, Octave

3 misconceptions about APM

Despite shared goals, many manufacturers hesitate to integrate APM into their EAM. Often, it comes down to a few common misconceptions.

1. We need to mature EAM first.

"It's not true that you have to 'master' EAM before advancing to APM," Wagner emphasizes. "APM can be implemented on a small scale or alongside agile approaches. For example, you could apply APM to your top assets by size or value. Most organizations already know which assets are the most critical to their operations, but they don't always know which of those are the 'bad actors' that require the most attention."

2. We are not an enterprise organization.

"Don't assume that APM is an expensive solution that only serves enterprise manufacturers," cautions Tilley. "APM is for any forward-thinking company that is trying to reach the next level of maintenance expertise."

3. We don't have good data.

"While it's true that EAM provides the foundation for APM, don't let the lack of data integrity, quality or even quantity stop you," Wagner encourages. "Not only do many companies have more data than they think they do, but they also need far less of it to start gaining insights with APM."

How APM supports EAM

Combining EAM with APM gives manufacturers greater visibility into their assets and improves OEE. APM empowers them to stay ahead of failures by pulling information from EAM to understand how maintenance work is planned, scheduled and executed.

“APM is the ability to prioritize the right maintenance at the right time for your assets,” Wagner explains. “It gives manufacturers visibility into the tradeoffs among cost, performance, and risk.”

The first step is to identify the most critical assets. This often starts with reexamining critical assets. Some organizations assume they should focus on their oldest or newest assets because they typically have the largest replacement cost. However, that’s not the only metric to determine value.

“A better question — what is the cost to your operations if this item goes down? Does it cause a minor headache or does the entire plant go offline?” asks Tilley. “Anything with a sizable risk needs to be addressed with strategic investments.”

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“APM not only quantifies the monetized risk of failure for an individual asset — it can evaluate a group of assets and prioritize them based on the identified risks. It’s a way to quantitatively decide where to allocate money,” Wagner adds. “Octave’s Asset Risk Analyzer can calculate financial impacts of unreliable equipment, revealing where to optimize maintenance activities.”

This context proves relevant to organizations employing a run-to-failure strategy. Take the example of a $1-million asset with a 10-year lifespan. Much like owning a car, things will eventually break down and require higher capital costs. But it can be hard to gauge specifically when repair expenditures will escalate. APM can help reduce some of the uncertainty by analyzing an asset’s history of work orders and suggesting probable failure points. If that asset has already generated 200 work orders, for example, it’s time to take a closer look.

"APM will also provide prescriptive ways to care for that asset," Tilley notes. "Octave's Attune APM solution enables this with an embedded Asset Twin library. If you have a robotic palletizer from a certain manufacturer, for example, the system already contains all the known ways it can fail. You can then use the simulated equipment to run predictive analytics and stay in front of those crucial repairs."

This capability also enables organizations to apply condition monitoring. This real-time approach goes beyond regular inspections or even preventive maintenance actions. Instead, it looks at key parameters for equipment health based on the real-time conditions. This helps organizations move from time-based to condition-based maintenance.

"This includes considerations such as how well the equipment is running, how much power it's consuming or even signs of vibration. All of that live performance data is fed into the model in order to flag outliers," says Tilley. "It's the difference between checking your blood sugar once a day and monitoring it around the clock."

For example, the presence of vibration in a motor can be subtle. It can grow slowly over time before it starts to create problems. If trending data shows that vibrations are experiencing a gradual shift, APM could automatically offer suggestions on how to respond, such as increasing inspections, accelerating service frequency or implementing preventive maintenance. It can also trigger new parts to be ordered well ahead of a failure. Especially with the risk of supply chain delays, it can be incredibly useful to have notice that a new motor might be necessary within the next three months.

"This kind of advanced warning is also invaluable on significant pieces of equipment," Tilley stresses. "An asset worth $500,000 might require a 9-month lead time to produce and ship from its manufacturer. You want the ability to proactively order a replacement before it's out of commission. That's also a bonus for capital planning, budgeting and asset investment planning."

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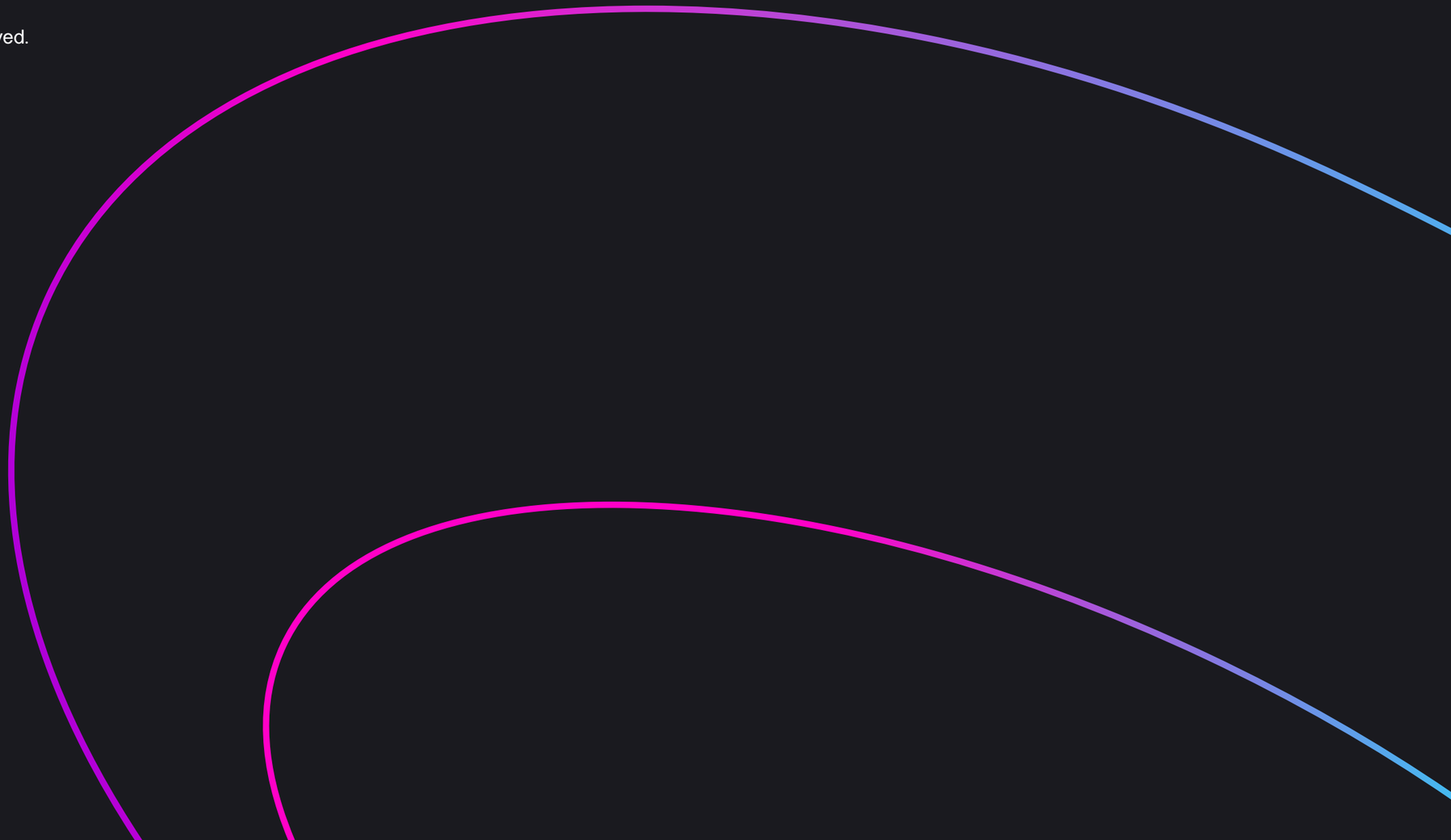
Conclusion:
From reactive to predictive

EAM and APM create a comprehensive framework that significantly enhances OEE by improving availability, performance and quality. EAM ensures properly maintained and operational equipment, reducing unplanned downtime and maximizing asset availability. APM uses predictive analytics to anticipate risk and optimize maintenance strategies, ensuring equipment runs at peak performance. This proactive approach keeps machines running efficiently and reduces the likelihood of defects, indirectly supporting product quality by ensuring that equipment functions optimally.

Incorporating APM into EAM enables manufacturers to shift from reactive to predictive maintenance, protecting against production interruptions and strengthening product quality. With this visibility, organizations can act earlier, adjusting maintenance schedules, increasing inspections or ordering parts in advance. It reduces downtime, improves planning and strengthens both operational and financial performance.

About Octave

Octave is a leader in enterprise software, turning data into decisive action and intelligence into your edge. Our software solves for and simplifies complexity, from the design and build to operations and protection of people, property and assets – for any scope, at any scale. For decades, we've partnered with customers to sharpen performance, elevate efficiency and amplify results. From factory floors to entire cities, our solutions are tuned to scale up what's possible from day one onward.



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