



# Reliability Management from GE Digital

Part of our Asset Performance Management suite



# Business challenges

The external environment—including a flat global economy, pressure to grow revenue and profit, tighter regulations, and increased competition—has significantly changed the way assets are operated. But internal inefficiencies, including lack of operationally relevant insight, still prevent companies from optimizing asset performance.

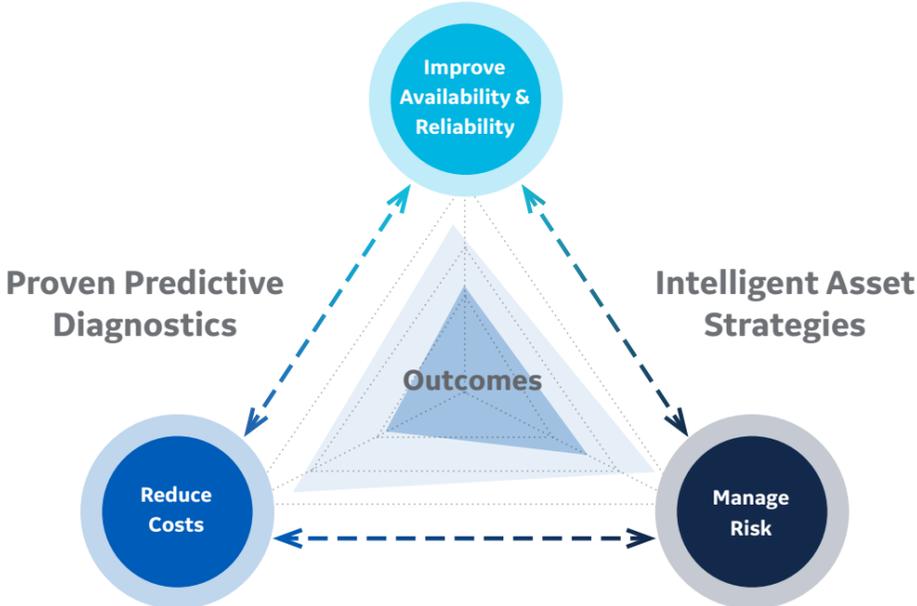
Operators are challenged by a lack of visibility into their assets' data and by not having appropriate predictive

diagnostics to know in advance when asset failure is about to occur—and why. Instead, operators often use a time-based approach to maintenance, which doesn't take into consideration the way assets are being utilized, their current condition, and real-world operating conditions. Operations and Maintenance (O&M) teams miss signs that equipment is about to fail. And they insert more risk into the equation by doing unnecessary routine maintenance. The results: even more inefficiencies, risks, unplanned downtime, and costs.

# Intelligent asset strategies

Asset Performance Management (APM) from GE Digital is an integrated suite of four software and service offerings powered by Predix, the operating system for the Industrial Internet. APM enables [intelligent asset strategies](#) to collect and manage all your data and information to make the best decisions that help maximize overall asset and operational performance, and to continuously improve and learn, automatically.

APM helps asset-centric organizations drive safer and more reliable operations while ensuring optimal performance at a lower sustainable cost by *balancing cost, availability and reliability, and risk.*



**So how can your organization enable intelligent asset strategies and address these key business challenges head on?**



# Reliability Management

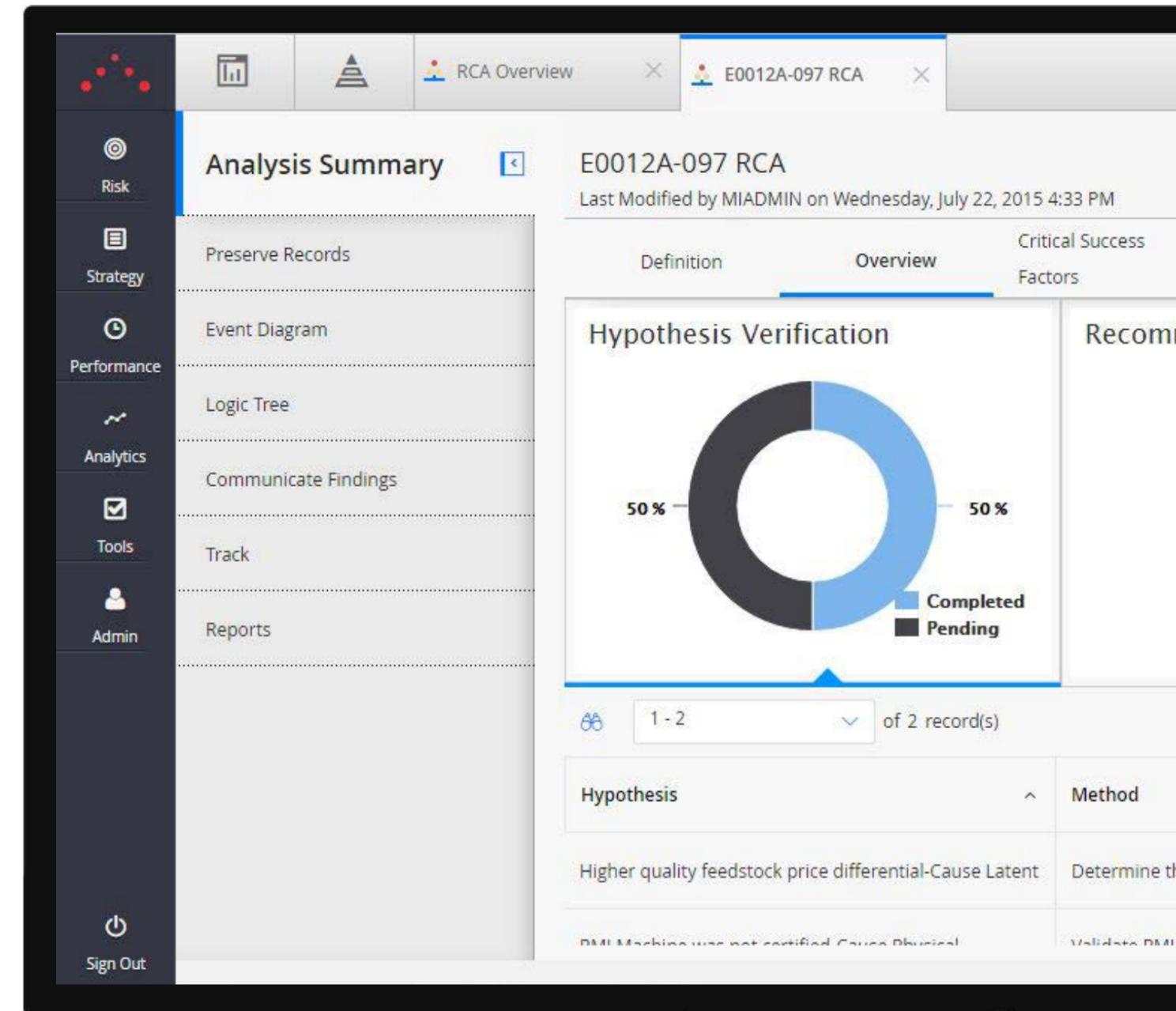
Part of our APM suite, GE Digital's Reliability Management (RM) uses advanced predictive diagnostics to analyze data and detect and diagnose equipment problems before they occur, allowing you to focus resources where they are needed. With RM, *you* schedule downtime and *you* control costs, all on *your* terms.

RM is designed to work across all assets (fixed, rotating, and non-rotating), all equipment types and manufacturers (GE and non-GE), and all industries—across the plant and across the enterprise.

RM can help you:

- > **Reduce unplanned downtime** and increase availability and reliability
- > **Reduce costs** by better maintenance planning, focusing resources only where they're needed and reducing overtime and cost of spare parts
- > **Lower risks to your workforce and improve safety** by reducing catastrophic failures and asset-related incidents
- > **Improve productivity** and operator efficiency by evolving from time-based maintenance to more efficient and proactive condition-based maintenance.
- > **Learn from the past to improve future performance** through managing anomalies and all details of cases and corresponding actions and by capturing best practices

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# Features of Reliability Management

## > Predictive diagnostics

Predictive diagnostics enables the analyst to anticipate or identify failure of an asset with longer lead time—improving reliability and performance by modeling the asset’s expected versus observed states. The analyst can leverage structured time-series and unstructured data, including process parameters and condition alerts, in the context of the assigned maintenance strategy and actual maintenance performed. Analysts also can compare operating conditions and performance with other similar assets.

## > Case and collaboration management

Case and collaboration management supports interaction of experts and information over the lifecycle of mitigating an issue. Case management includes expert interpretation and collaboration around an integrated evidence set and supports a proactive recommendation and action workflow.

## > Root cause analysis

This capability uses a standard methodology for investigation of failures, provides better understanding and analysis of the underlying cause of failure, and captures and institutionalizes that information to help prevent future occurrences.

## > Reliability analysis

This capability provides a comprehensive set of analytical tools to help understand causes of asset failure patterns and the true cost of failure. These tools can help you analyze data to identify bad actors and recurring asset failures, develop operational and maintenance strategies, and evaluate the effectiveness of those strategies over time. Wizards allow users to quickly build growth, Weibull, cost of unreliability, and production analyses.

## Real customer results

### Salt River Project (SRP)

May Millies, Manager, Power Generation Services, SRP:

*SRP uses GE Digital solutions “to help us get to ‘no unplanned down-time’ by moving us to more planned outages instead of reactionary or emergency outages and to show us when things are going to happen instead of waiting until they occur.”*

[WATCH THE SRP VIDEO](#)

### Delta Air Lines

Jeff Slagle, General Manager, Propulsion Engineering, Delta Air Lines:

*“It’s ok to collect data—but in the end you have to really do something with it.” Delta uses GE Digital’s Reliability Management software to analyze engine data—from 14 models, 4 OEMs—to detect changes and keep its passengers safe.*

[WATCH THE DELTA VIDEO](#)



# GE Digital's Asset Performance Management

Reliability Management is one of four APM solutions:

 <h3>Reliability Management</h3> <p>Achieve less unplanned downtime by predicting equipment issues before they occur.</p> <ul style="list-style-type: none"><li>• Predictive diagnostics</li><li>• Case and collaboration management</li><li>• Root cause analysis</li><li>• Reliability analysis</li></ul>	 <h3>Compliance &amp; Integrity Management</h3> <p>Ensure asset integrity and compliance by monitoring changing risk conditions.</p> <ul style="list-style-type: none"><li>• Hazard analysis</li><li>• Safety lifecycle management</li><li>• Risk based inspection</li><li>• Inspection management</li><li>• Thickness monitoring</li><li>• Management of change</li></ul>	 <h3>Asset Strategy Optimization</h3> <p>Optimize across availability, reliability, risk, and costs through intelligent asset strategies.</p> <ul style="list-style-type: none"><li>• Reliability centered maintenance</li><li>• Failure mode and effects analysis</li><li>• Strategy management</li><li>• Strategy library</li><li>• Lifecycle cost analysis</li><li>• Financial and risk simulation</li></ul>			
 <h3>Machine &amp; Equipment Health</h3> <p>Anytime, anywhere, unified view of your assets' current state and health.</p> <table border="0"><tr><td><ul style="list-style-type: none"><li>• Connectivity</li><li>• Data management</li><li>• EAM integration</li></ul></td><td><ul style="list-style-type: none"><li>• Condition monitoring</li><li>• Data analysis and visualization</li><li>• Criticality analysis</li></ul></td><td><ul style="list-style-type: none"><li>• Event management</li><li>• Recommendation management</li><li>• Reliability benchmarking</li></ul></td></tr></table>			<ul style="list-style-type: none"><li>• Connectivity</li><li>• Data management</li><li>• EAM integration</li></ul>	<ul style="list-style-type: none"><li>• Condition monitoring</li><li>• Data analysis and visualization</li><li>• Criticality analysis</li></ul>	<ul style="list-style-type: none"><li>• Event management</li><li>• Recommendation management</li><li>• Reliability benchmarking</li></ul>
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## APM offers multiple benefits, including:

- > Improves reliability, availability, and productivity
- > Optimizes maintenance costs
- > Mitigates risk
- > Maintains technical expertise (tribal/organizational knowledge)
- > Delivers continuous improvement

[Learn more about our complete APM offering](#)

Do you want to learn more about how you can use your data to detect and diagnose equipment problems before they occur?

Visit our website to learn more about Reliability Management.

VISIT OUR WEBSITE





## About GE

GE (NYSE: GE) is the world's Digital Industrial Company, transforming industry with software-defined machines and solutions that are connected, responsive and predictive. GE is organized around a global exchange of knowledge, the "GE Store," through which each business shares and accesses the same technology, markets, structure and intellect. Each invention further fuels innovation and application across our industrial sectors. With people, services, technology and scale, GE delivers better outcomes for customers by speaking the language of industry.

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