APM Reliability

Reduce unplanned downtime by predicting equipment issues before they occur

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.
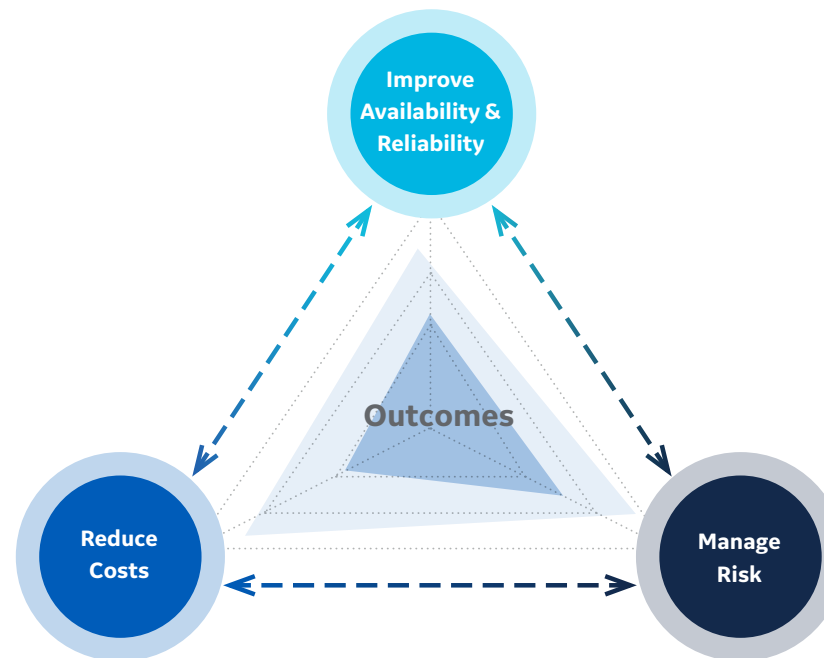
Operators are challenged by a lack of visibility into their assets' data and by not having appropriate predictive diagnostics to know in advance when asset failure is about to occur—and why. Instead, operators often use a time-based approach to maintenance, which doesn't take into consideration the way 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.
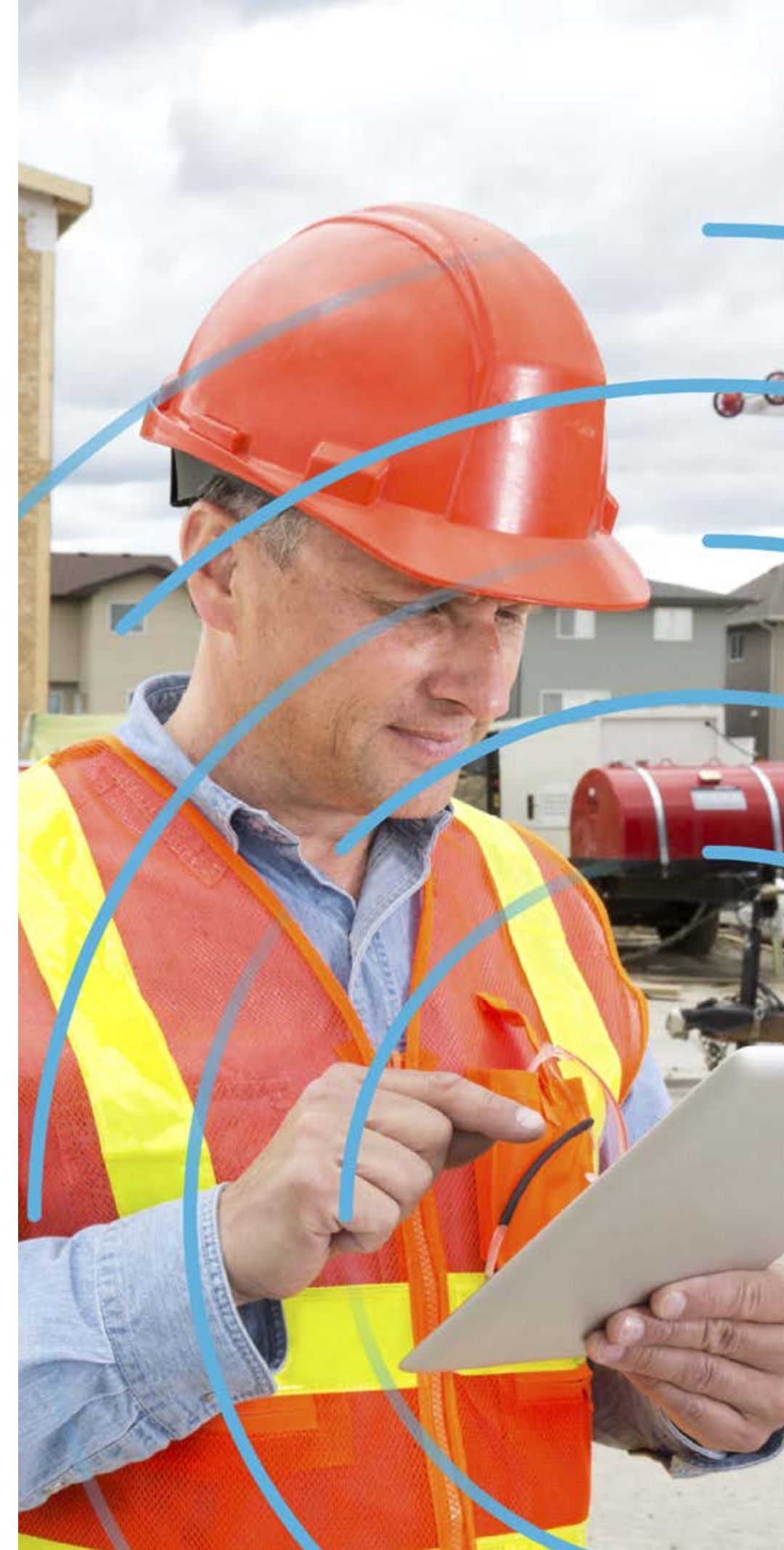
A continuous loop of improvement

Predix Asset Performance Management (Predix APM) is a suite of software and service solutions designed to help optimize the performance of your assets. Predix APM increases asset reliability and availability while optimizing maintenance costs, mitigating operational risks, and reducing total cost of ownership (TCO). The suite connects disparate data sources and uses advanced analytics to turn data into actionable insights while fostering collaboration and knowledge-management across the organization. Predix APM works across all equipment, all OEMs, and all industries, across the plant, and across the fleet. Built on Predix Platform, Predix APM gives organizations the flexibility to develop new analytics and applications, making it versatile to meet changing needs.

So how can your organization address these key business challenges head on?
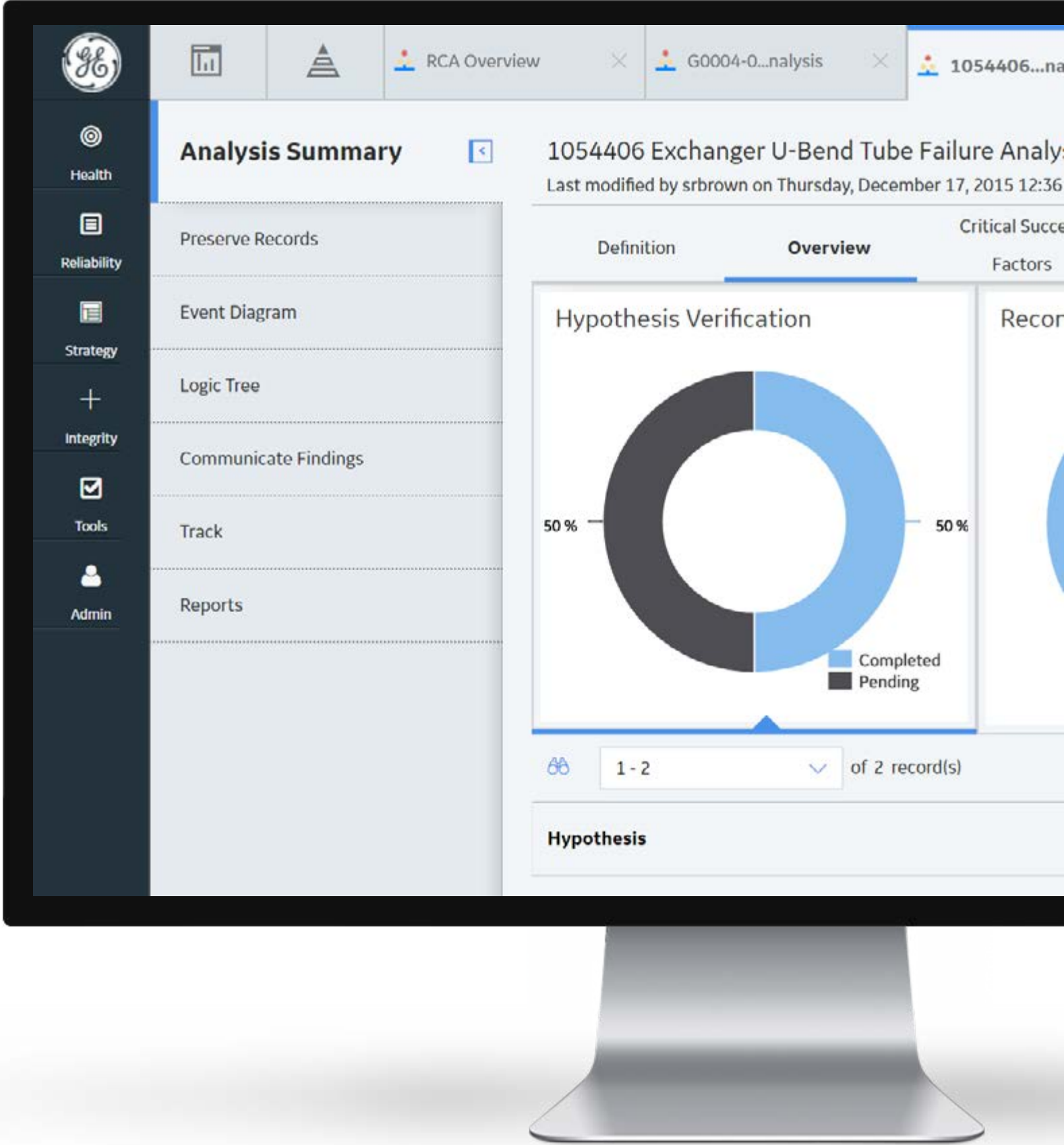
APM Reliability

With APM Reliability, a Predix Asset Performance Management (Predix APM) solution, asset-intensive organizations can leverage advanced predictive diagnostics to analyze data, and detect and diagnose asset issues before they occur. This allows companies to schedule downtime and control costs on their own terms.

APM Reliability 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.

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APM Reliability can help you:

> **Collaborate** across functional teams to make better operational and maintenance decisions

> **Measure** the effectiveness of asset strategies to know when corrections are warranted

> **Develop** and retain best practices from an ever-changing workforce to continuously improve decision making

LEARN MORE

Capabilities of APM Reliability

> **Digital twin blueprints**

Digital twin blueprints enable the analyst to anticipate or identify failure of an asset with longer lead time to improve reliability and performance by modeling the asset's expected versus observed states. The analyst can leverage structured time-series data and unstructured data, including process parameters and condition alerts, in the context of the assigned maintenance strategy and actual maintenance performed. It can also compare operating conditions and performance with other like assets.

> **Root cause analysis**

Root cause analysis (RCA) 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**

Reliability analysis 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 APM Reliability "to help us get to 'no unplanned downtime' 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 APM Reliability to analyze engine data—from 14 models, 4 OEMs—to detect changes and keep its passengers safe.

WATCH THE DELTA VIDEO

Predix Asset Performance Management

APM Reliability is one of four Predix APM solutions:

Predix Asset Performance Management | Cloud

APM Health

Anytime, anywhere, unified view of your assets' current state and health.

• Health manager
• Rounds
• Calibration management

APM Reliability

Predicting equipment issues before they occur.

• Reliability analysis
• Digital twin blueprints
• Predictive diagnostics
• Root cause analysis

APM Strategy

Optimize across availability, reliability, risk, and costs through asset strategies.

• RCM / FMEA
• Strategy library
• Strategy manager
• Lifecycle cost analysis

APM Integrity

Reduce cost and risk for enterprise fixed equipment inspection programs.

• Risk based inspection
• Inspection management
• Thickness monitoring
• Hazard analysis
• Management of change

Predix Essentials

IT/OT Connectivity & Integration
• EAM systems
• HMI/SCADA, Historian, MES systems
• Asset controllers & sensors

Edge-to-Cloud Computing
• Industrial data fabric
• Analytics & machine learning
• End-to-end security

Monitoring, Analysis & Event Management
• Dashboards, interactive data analysis
• Criticality, alerts, cases, recommendations
• HMI visualizations & alarms

Predix 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 Predix 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 APM Reliability.

[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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