

Azure C3 AI Reliability

Take Early Action to Improve Asset Performance

Azure C3 AI® Reliability is an AI-enabled predictive maintenance application that helps reliability engineers, plant managers, and operations executives maximize operational uptime and productivity.

**20-50%**

reduction in unplanned downtime via early risk detection of anomalous conditions

**15-25%**

reduction in maintenance costs via reduction of overall downtime and maintenance

**Up to 99%**

reduction in false alert volume via precise AI-based risk monitoring

**40,000+**

pieces of equipment and 3 million sensors monitored across customer deployments

Today, many enterprises rely on time-based maintenance and siloed systems to monitor equipment health. However, these approaches do not provide sufficient operational visibility or a predictive, risk-based approach to equipment operations. As a result, asset operators face high unplanned downtime and lagging operational performance.

Azure C3 AI Reliability is an AI-powered predictive maintenance application that identifies reliability risks with early warning, helping enterprises maximize uptime, reduce costs, and improve productivity. The application provides a holistic view of operations by unifying various types of data from disparate sources such as data historians (e.g., sensor data), CMMS systems (e.g., maintenance records, MRO equipment and materials), and other operational systems (e.g., shutdown events, operating procedures, equipment manuals) into a single, virtual representation of physical assets and processes.

Feature Summary

- **AI-driven predictive maintenance** – Leverage AI to identify equipment issues that impact asset reliability and operational performance in advance.
- **Conversational search and chat** – Powered by Azure C3 Generative AI, ask conversational questions to quickly access operational know-how and AI insights.
- **Codified subject matter knowledge** – Unify and leverage domain knowledge for AI insights using NLP and deep learning capabilities.
- **Prioritized alerting** – Improve worker efficiency by reducing the number of unnecessary alerts through AI-enabled risk-based modeling and prioritization.
- **Failure mode identification and recommended actions** – Utilize autogenerated failure modes and corrective actions based on out-of-the-box failure mode libraries.
- **Evidence packages** – Drill down on individual risk factors contributing to AI alerts to understand how various factors impact system reliability.

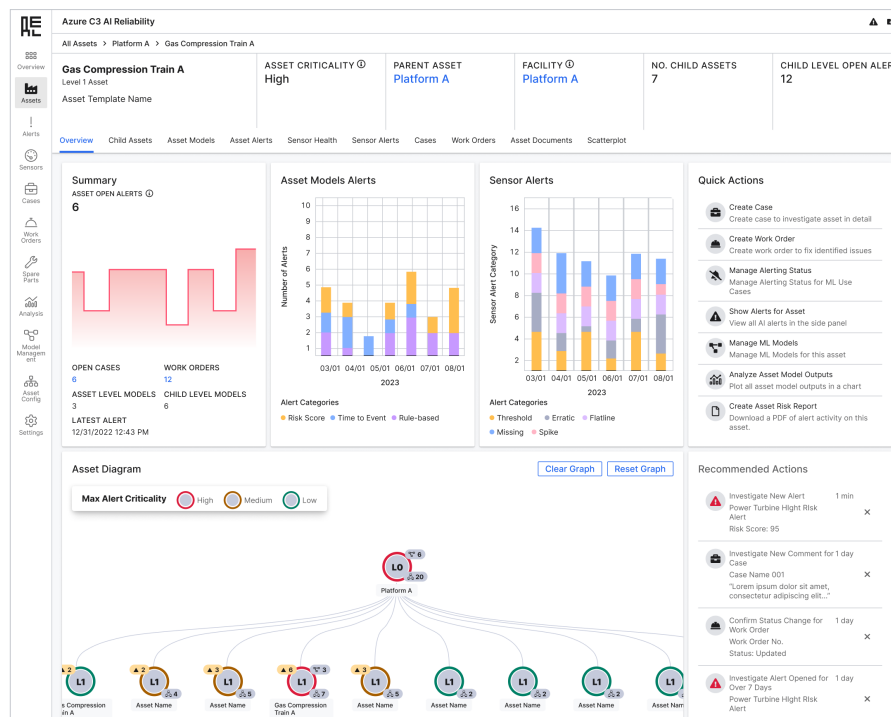


Figure 1. Azure C3 AI Reliability Asset Details Page allows end users to review asset health alerts, sensor health alerts, and related cases and work orders in a single aggregated view.

Azure C3 AI Applications deliver transformative value for customers and are fully integrated with Microsoft Azure. Each application leverages Microsoft Azure solutions and services, including Azure AI services, infrastructure services, data services and more, enabling accelerated deployment.

Applying proven, out-of-the-box machine learning algorithms (e.g., anomaly detection) on top of the unified data, Azure C3 AI Reliability identifies high-risk system behaviors and provides prioritized alerts for engineers. The AI models are traceable and explainable, allowing users to drill down to individual risk drivers (e.g., specific sensors). User-friendly ML model operations workflows allow citizen data science teams to easily monitor and adjust AI models over time.

Azure C3 AI Reliability drives efficient decision-making through automated failure mode analyses and integrated investigative workflows. For each risk, the application identifies potential failure modes and provides recommended actions based on pre-integrated failure mode libraries and institutional knowledge. With write-back into existing maintenance and work order systems, users can take rapid action to resolve issues.

Pre-integrated with Azure C3 Generative AI, end users can easily access and interact with AI insights and codified domain expertise through an intuitive search and chat interface. The application leverages natural language processing and deep learning capabilities to encode documents and text-based institutional knowledge (e.g., best practices, operating procedures, and field notes) and provide AI insights in natural language (e.g., alert summaries).

Using pre-built templates for assets, ML models, and user interface, Azure C3 AI Reliability can be deployed across wide variety of asset types and equipment (e.g., valves, compressors, pumps, turbines, generators, towers, chillers, and transformers) in a matter of weeks. With the underlying configurability and flexibility capabilities, the application can easily be scaled to monitor fleets of assets and facilities across the globe.

Azure C3 AI Reliability has been driving tangible business value across a wide range of industries including manufacturing, pharmaceuticals, energy, utilities, CPG, heavy industrials, and more.

Feature Summary (cont.)

- **Sensor health** – Leverage ML to monitor sensor networks, identify malfunction sensors, and diagnose sensor failures.
- **Integrated, collaborative workflow** – Allow monitoring, plant, and maintenance teams to manage and collaborate on alerts, cases, and work orders through a shared investigative platform.
- **Digital diagrams** – Parse physical diagrams to connect sensor IDs and asset IDs to the digital model of assets and operations and build out a clickable diagram to contextualize monitoring.
- **Asset templates** – Rapidly construct a digital representation of systems and assets, complete with equipment monitoring metrics and KPIs.
- **Scalable AI** – Scale quickly to large fleets and across types of assets using asset templates and end-user configuration of asset hierarchies, failure mode libraries, and ML models.
- **Model operations** – Monitor and manage ML model performance at scale and over time with built-in model monitoring, configuration, re-training, and deployment features.
- **Performance benchmarks** – Compare regions, facilities, and systems based on configurable reliability and performance metrics.
- **Bi-directional integration** – Seamlessly interface with existing software (e.g., CMMS systems) to maintain accurate and near-real time records.

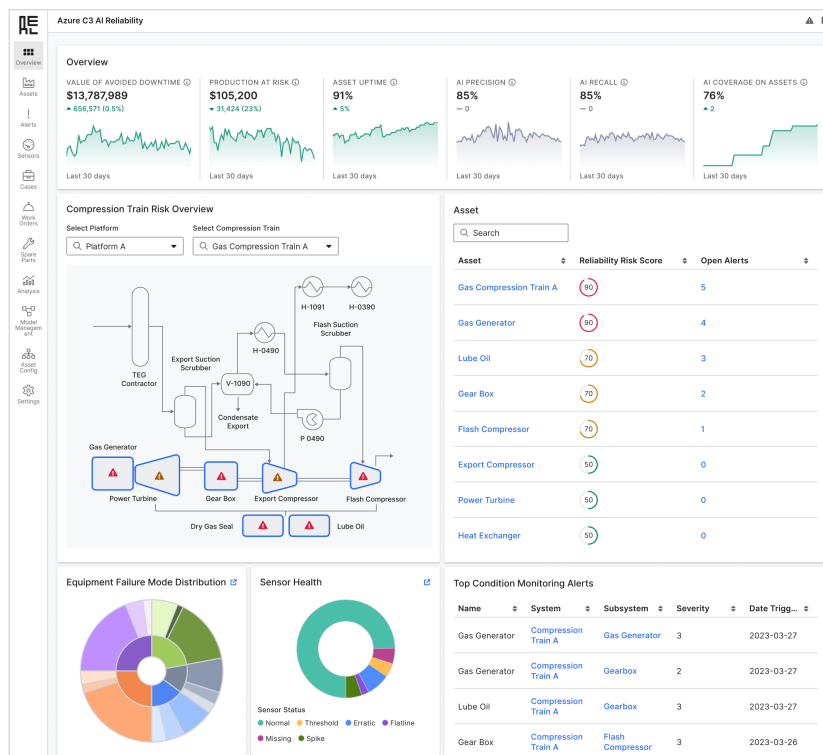


Figure 2. Azure C3 AI Reliability offers a rich and configurable dashboard to visualize operational KPIs and AI insights of system reliability and sensor health.

Proven Results in 6-Month Pilot Visit C3.ai/get-started