



A Special Report by [Reliabilityweb.com](https://reliabilityweb.com)

# Operationalizing AI for Asset Condition Management

## Leading the Path to Modern Reliability

---

Terrence O'Hanlon



## Artificial Intelligence is the greatest story of our time.

Artificial Intelligence is not merely a trending narrative; it's the cornerstone of a transformative era in industrial reliability and asset management.

The industrial domain is undergoing a metamorphosis, propelled by the ascendancy of AI. This is more than a technological upheaval; it's a cultural evolution that is empowering individuals and companies to reach new heights.



Uptime® Elements - A Reliability Framework and Asset Management System™ stand at the intersection of this change. There, the asset's efficiency is the core pursuit. Both AI and Machine Learning (ML) synchronize seamlessly with this framework. Together, they offer an unparalleled edge in modern reliability practices.

Unlike mechanical automation, AI in Uptime® Elements is not confined to predefined tasks. It introduces an adaptive, predictive, and enriching approach to asset management and reliability strategies. This better aligns with the core principles of the Reliability Leadership Institute.

A consortium of dedicated Reliability Leaders has now drawn direct correlations between AI and each individual Uptime® Element, including Decision Making (DM) and Asset Knowledge (AK). This functional mapping is set to be unveiled at the 37th International Maintenance Conference. Further resources are planned for a January 2024 release.

In our journey to advance reliability and asset management, we've encountered revolutionary AI-powered technologies that mark a seismic shift. Recently, over 1500 of the world's best-run companies congregated at a Reliability Leadership Institute-curated conference to unearth strategies that enhance asset management and equipment reliability.

“ AI is now operational, tangible, and transformative ”

## Key Lessons Emerged from the Conference:

- 1. People: AI's Driving Force** – AI's potency is leveraged by subject matter experts who contextualize and enable AI at the operational level. Creating a digital reservoir of this expert knowledge empowers machine learning to operationalize insights.
- 2. AI: From Abstract to Operational Reality** – AI transcends theoretical bounds. It is now a tangible force, refining traditional reliability strategies, fine-tuning preventive maintenance, and setting new industry benchmarks.
- 3. Actionable Insights: Connecting Data and Workflow** – Turning insights into actions by integrating them into CMMS and EAM systems forms the backbone of modern reliability management. Continuous feedback loops refine AI insights based on real-world effectiveness.

## A Future Guided by Integration and Understanding

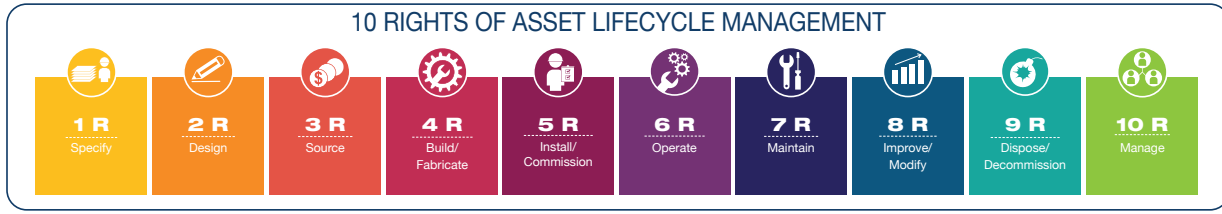
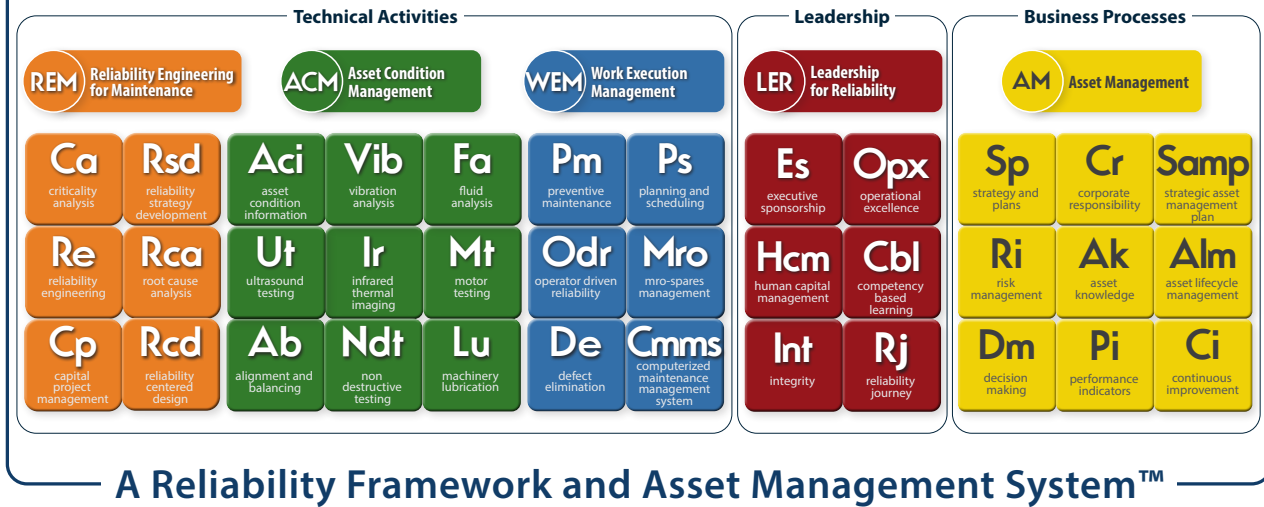
The resonance at the Reliability Leadership Institute Technology Conference signified that the future is already here. AI is now operational, tangible, and transformative, with R.AI, the Reliability AI-powered Chatbot, paving a new path.

But the unifying theme remains: human connection. AI elevates us. It transforms data into wisdom and insights into actions. It is not a disruptive force, but a collaborative ally.

## The Evolution of Industry 4.0: A Fusion of Innovation

Industry 4.0, marked by intelligent transformation, is driven by the convergence of Operating Technologies (OT) and Information Technologies

# Uptime® Elements



# Uptime® Elements

## Internet of Things Knowledge Domain

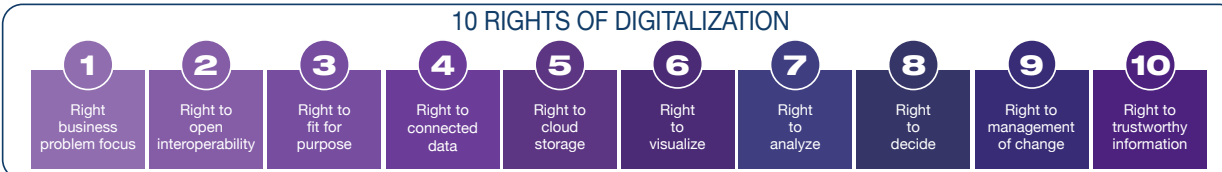
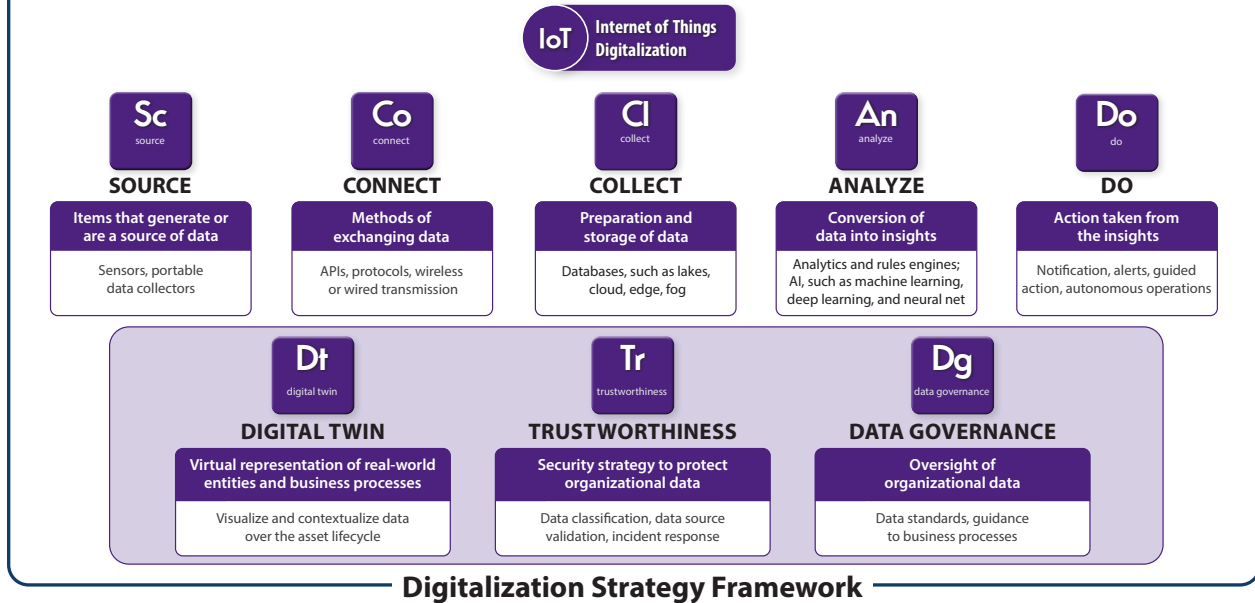


Figure 1: Uptime® Elements Reliability Framework and Asset Management System and Uptime Elements Digitalization Framework.



(IT). AI, big data, cloud computing, and universal connectivity are powering interconnected and autonomous manufacturing equipment.

The nexus of Industry 4.0 and AI is redefining reliability and asset management. The world's pioneering companies are embracing these technological marvels. They are unlocking machine uptime, curbing downtime, and fostering sustainable growth.

The fusion of domain expertise with avant-garde technology heralds not just an evolution, but a revolution in how we approach production resilience, asset condition management, and industry itself.

## Reliability Partner Resource Directory

Operationalizing AI for Asset Condition Management: A Blueprint for Modern Reliability Leadership in the Uptime Era

Join us in this remarkable journey at the Reliability Leadership Institute. Explore the intersection of AI and reliability at the Reliabilityweb.com Reliability Partner Directory, where our mission to foster a more reliable world resonates, every single day with top technology solution providers.

### IBM Maximo: Pioneering Maintenance Revolution with AI

In this era of Industry 4.0, maintenance has evolved into a critical component of operational excellence. IBM's Maximo 8.0 leads the charge. It is infusing AI, big data, and cloud technology with hands-on domain expertise, which fortifies production resilience. Key innovations include:

- **Visual Inspections:** AI-powered evaluations across various infrastructures.
- **Guided Repairs:** Intelligent assistance for technicians tackling complex repairs.

- **Real-Time Visibility:** Unprecedented monitoring of technician safety and health.
- **Predictive Maintenance:** Leveraging asset models for flexible deployment through Red Hat's OpenShift, Maximo 8.0 extends core capabilities such as Maximo Monitor, Maximo Health, Maximo Predict, and Maximo Assist, reshaping asset condition management.



### Boston Dynamics and Levatas: Innovation with Spot

In a groundbreaking alliance, Boston Dynamics and Levatas have integrated OpenAI's ChatGPT into Spot, transcending its initial design to engage in articulate dialogue. Tailored for manufacturing and logistics, Spot's enhancement through ChatGPT bridges the complexity of technical data with actionable intelligence. This reinforces reliability and asset management. The development aligns with ethical guidelines and the vision to expand Spot's capacity to enhance safety, security, and maintenance through GPT-4 integration.

## IFS, a global enterprise asset management technology leader, recently announced the successful acquisition of Falconry and its AI platform.

### IFS: Falconry Application Suite: A Pathway to Operational Excellence

The Falconry Application Suite, with its time series AI platform, aligns perfectly with the vision of advancing reliability practices:

- **Continuous Monitoring:** Ensuring the Uptime® Elements - A Reliability Framework and Asset Management System™ principles are met.
- **Collaborative Root-Cause Analysis:** Enhancing team synergy.
- **Centralized Operations Data Exploration:** A holistic view of operations.

- **Anomaly Detection and Prioritization:** Strengthening maintenance strategies.
- **Accelerated Root Cause Analysis:** Efficiency in resolution resonating with our mission.

The Falconry Application Suite manifests the future of reliability and asset management. By translating data into actionable intelligence, it drives decisions that align with the principles advocated at Reliabilityweb.com.

### C3 AI: Catalyst for Operational Excellence

C3 AI Reliability embodies principles aligned with the Uptime® Elements - A Reliability Framework and Asset Management System™. It is more than an application—it's a force for innovation. By fusing diverse AI technologies to foresee equipment risks, C3 AI not only predicts but empowers. It converts data into actionable strategies that resonate with our vision for safe, sustainable, and successful workplaces.





## Cognite: Revolutionizing Reliability

Cognite Maintain: Elevating Maintenance Efficiency

Cognite Maintain represents a transformative approach to AI and reliability. With insight into maintenance processes, it breaks traditional barriers. It can achieve efficiency gains and foster collaboration through integration and visualization.

Cognite APM: Shaping Your Asset Performance Management Strategy

Cognite APM goes beyond technology, aligning perfectly with the Uptime® Elements - A Reliability Framework and Asset Management System™. By connecting and consolidating data across reliability domains, automating change management, enhancing data discovery, and streamlining field execution, it offers a complete approach to asset health monitoring. Its integration of unstructured field data and feature-rich offerings align with our mission to foster safe, sustainable workplaces.

## HxGN EAM and AI

Pioneering Future-Ready Solutions

Hexagon's Asset Lifecycle Intelligence division launched the HxGN EAM Python Framework on June 13, 2023, in Huntsville, Alabama. This innovative module maximizes Python's potential, creating synergies with machine learning, data science, and AI. The HxGN EAM Python Framework's two core components are:

1. Python Studio: Integrated with JupyterLab, it offers full Python 3 compatibility, industry-standard abilities, and access to HxGN EAM's robust APIs. It empowers maintainers at all levels to transform visual notebooks into executable Flex Python scripts effortlessly.

2. Flex Python infrastructure: Built on Kubernetes, this component ensures efficient execution of Python scripts without impacting HxGN EAM's performance.

With Clay Bush, Founder & President of Stratum Consulting Partners, lauding Python Studio as an extraordinary evolution in EAM, Hexagon's integrated Python Framework eases entry barriers, enhancing efficiency and offering unmatched flexibility.

Hexagon's commitment to melding physical and digital domains has once again positioned it as a Representative Vendor in the 2023 Gartner® Market Guide for Enterprise Asset Management. The introduction of the HxGN EAM Python Framework epitomizes innovation in reliability and asset management.

## AVEVA™ Predictive Analytics

The Next Frontier in Asset Reliability

AVEVA™ Predictive Analytics is transforming industrial asset management by empowering organizations with AI-driven predictive insights. Its no-code solution offers unique, customizable features tailored for diverse operations:

- Anomaly Detection: Advanced alert notifications and comprehensive reporting.
- Fault Diagnostics: Real-time insights and enhanced data quality.
- Time to Failure Forecast: Strategic planning for maintenance aligned with safety and profitability.
- Prescriptive Guidance: Mitigating failures through predefined recommendations.
- Proven Scalability: Rapid rollout and scaling of predictive maintenance programs.

AVEVA™ Predictive Analytics embodies a proactive strategy that resonates with the core principles of Reliability and Asset Management by contributing to the creation of safe, sustainable, and reliable industrial environments.

## **TRACTIAN: AI-Infused Innovation in Asset Management**

TRACTIAN's blend of IoT sensors and AI is revolutionizing machine maintenance. From substantial savings to improved efficiency, TRACTIAN's solutions like Energy Trac and TracOS™ app signify a commitment to maintenance excellence.

By aligning technology with reliability and asset management principles, TRACTIAN leverages AI to create an efficient, sustainable, and reliable future.

## **Operationalizing AI for Asset Condition Management: A Blueprint for Modern Reliability Leadership**

### **Augury Asset Condition Management**

Intelligent Solutions for Empowered Industry

In a technology-driven era, Augury Asset Condition Management is sculpting a new industrial paradigm, echoing the Uptime® Elements - A Reliability Framework and Asset Management System™. Merging principles of reliability, asset management, and sustainability, Augury unveils a holistic approach to manufacturing excellence.

AI-Transformed Production: From Prediction to Prevention

Augury's AI-orchestrated offerings infuse production with predictability, sustainability, and



innovation. The intelligent solutions, deeply rooted in machine and process health, are pushing boundaries, minimizing costs, and setting new standards in equipment care. It's more than technology—it's a declaration of intent to elevate industry standards.

### **Asset Watch**

Minimizing Unplanned Downtime with Vibration and Oil Analysis

Asset Watch, in alignment with the Uptime® Elements principles, stands at the forefront of predictive maintenance. The combined strength of vibration and oil analysis offers a robust strategy, diminishing unplanned downtime, enhancing reliability, and prioritizing maintenance tasks.

A Fusion of Technology: Strategic Planning for Reliability

The integration of technologies by Asset Watch ensures precise pinpointing of issues and optimizes maintenance schedules. It's more than an innovative approach; it's a pathway to minimizing downtime and fostering resource efficiency, redefining the era of reliability and asset management.





## AiSight

Shaping the Future of Asset Condition Management

AiSight, a beacon of innovation in asset condition management, aligns with the principles resonant with the Uptime® Elements framework. With applications across industries, AiSight's solutions promise sustainability, cost-effective maintenance, accuracy, and assurance.

The AiSight Vision: A Commitment to Unbounded Uptime

AiSight is not just fulfilling a goal; it's manifesting a reality of endless uptime. Embracing the AiSight vision means stepping into a future of optimized reliability, increased sustainability, and intelligent asset condition management. This is all in synergy with the Uptime® Elements - A Reliability Framework and Asset Management System™.

## The Renaissance of Data: The Future of Reliability and Asset Management

In the data-drenched modern era, the advent of platforms like Databricks, Fabric, Snowflake,

Azure Synapse, and SQL Server have transformed data management. These technological marvels are not just tools but the drivers shaping our reality, pushing boundaries of business intelligence.

## Conclusion: An Unmissable Call to Action

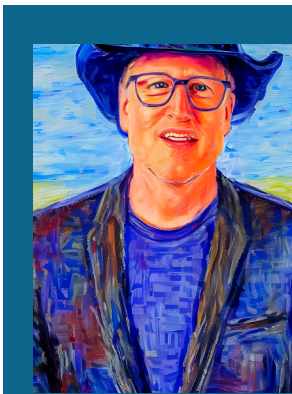
Data is now the lifeblood of technological evolution, and ignoring it risks our future success. Let's utilize these data platforms to sculpt our future, guided by experts like Tyler Koitka and supported by firms like Blueprint Intelligence. Let's harness real-time data for enhanced efficiency, sound decision-making, and sustainable growth.

For a deeper exploration of AI for reliability and asset management, engage with R.AI, the Reliability AI chatbot, at [www.Reliability.AI](http://www.Reliability.AI). It's not just about navigating the present; it's a journey towards defining our future. Embrace the innovation and be part of this exciting evolution.

**"R.AI"**  
**THE RELIABILITY.AI™ CHATBOT**

You can ask "R.AI." anything about Maintenance, Reliability and Asset Management

[reliabilityweb.com/ai](http://reliabilityweb.com/ai)



**Terrence O'Hanlon** is an innovative entrepreneur and the creator of Uptime® Elements Reliability Framework and Asset Management System™. He has taught Reliability Leadership to over 40,000 people since 2013. Additionally, O'Hanlon co-authored "10 Rights of Asset Management" with Ramesh Gulati.

He was awarded the first Certified Maintenance & Reliability Professional Veterans award by the Society of Maintenance & Reliability Professionals. He is the co-founder of the USA Chapter of the Institute of Asset Management.

More recently, he led the development of the privately-trained generative AI model, The Reliability AI (R.AI) Chatbot.

O'Hanlon holds numerous trademarks, copyrights and patents.