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ADVANCED PREDICTIVE ANALYTICS FOR NUCLEAR PLANT EQUIPMENT

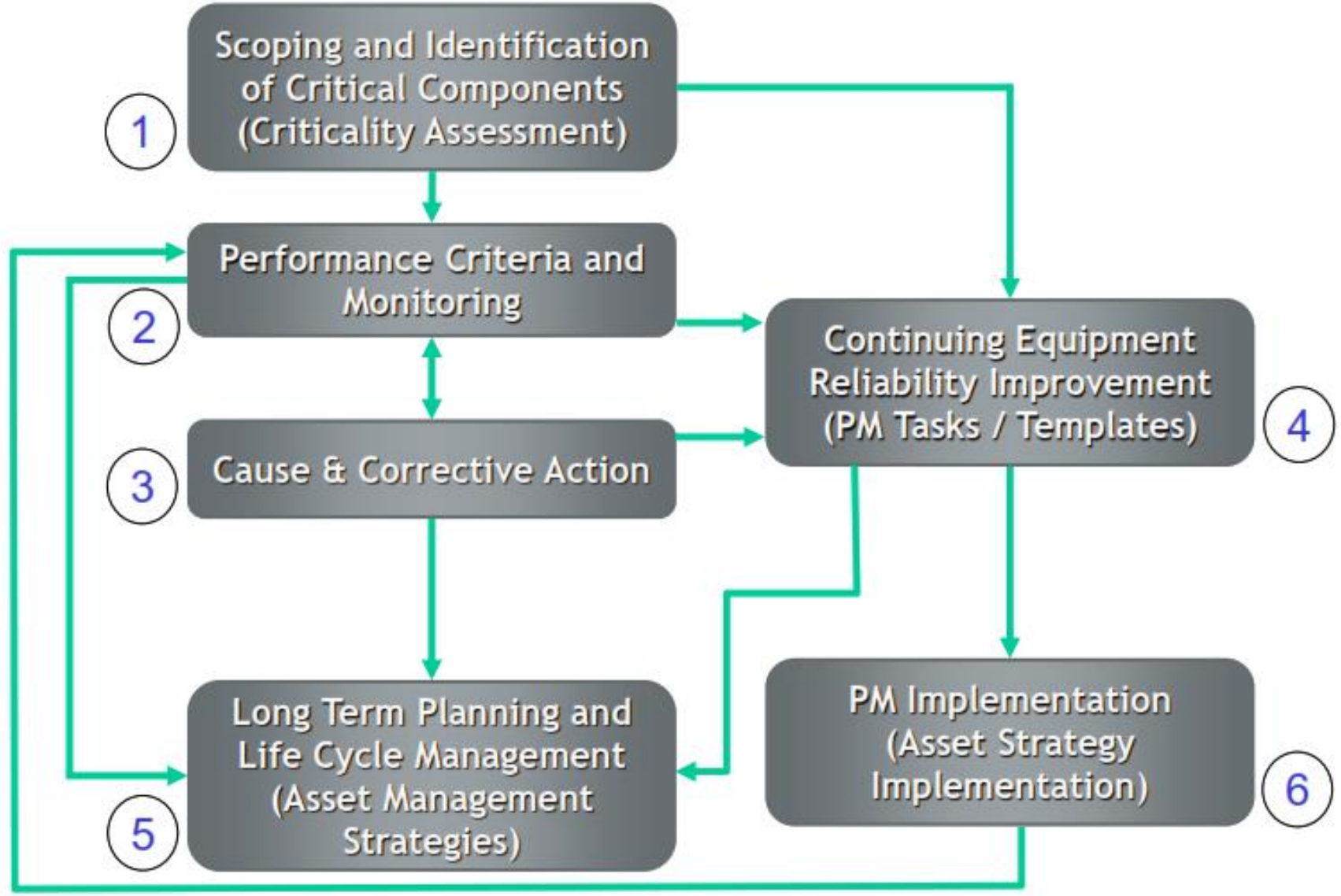
Based on INPO AP-913 Recommendations

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AP-913 Equipment Reliability Process – High Level

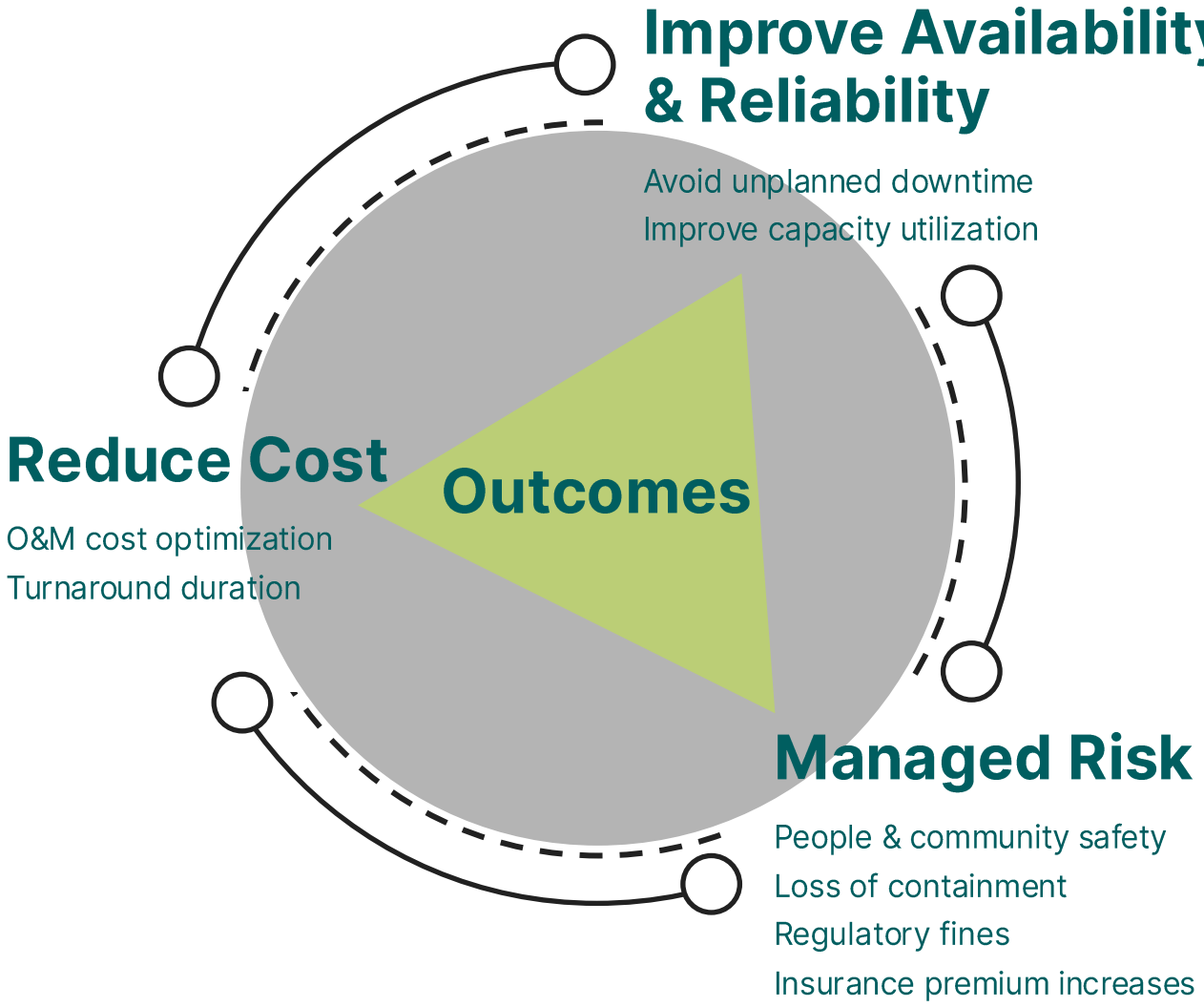
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Introducing GE Vernova APM

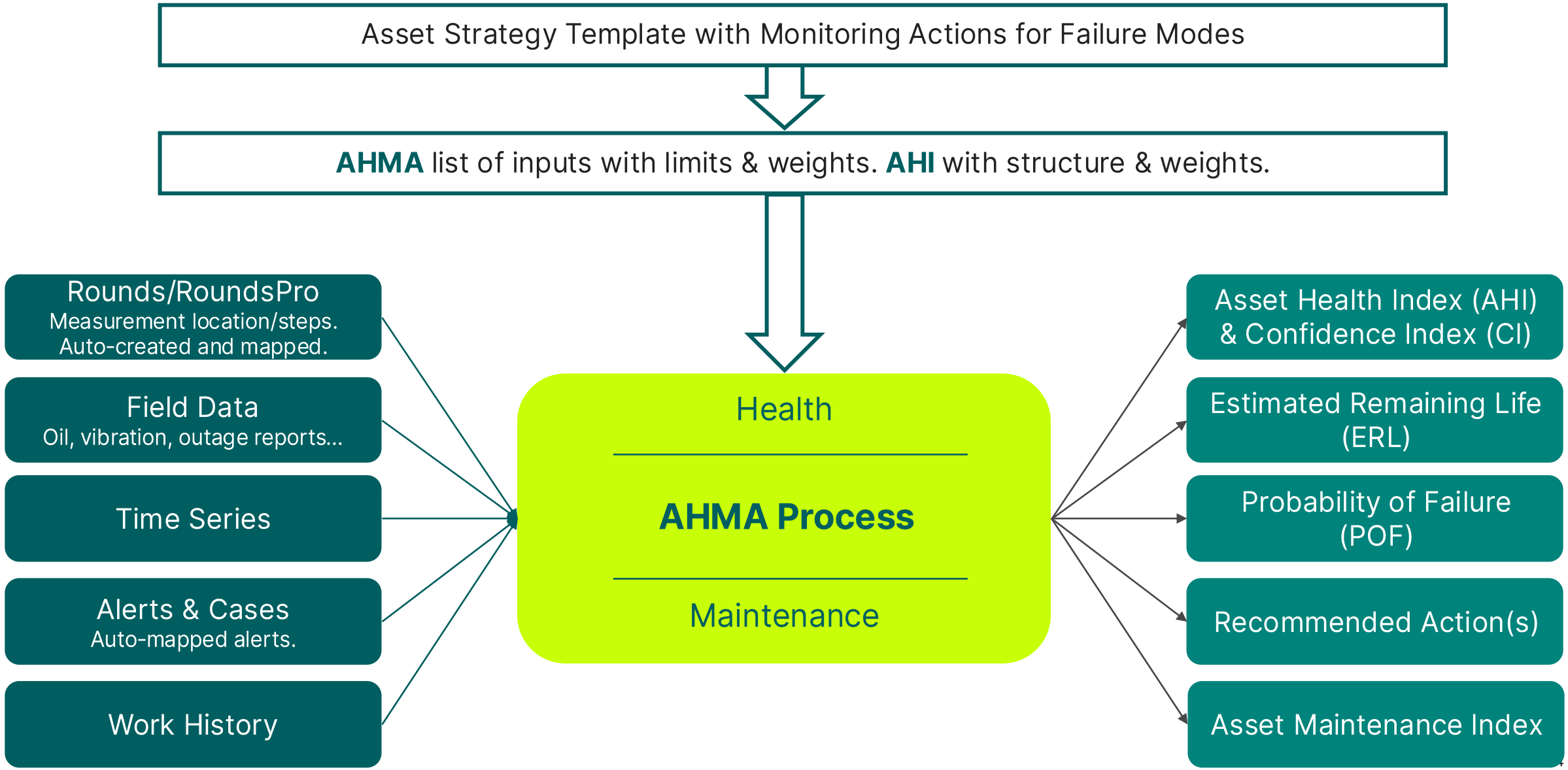
GE APM is a software solution that provides a 360º view of asset performance that allows organizations to balance risk, availability and cost.

BALANCING COMPETING PRIORITIES TO ACHIEVE OPERATIONAL EXCELLENCE

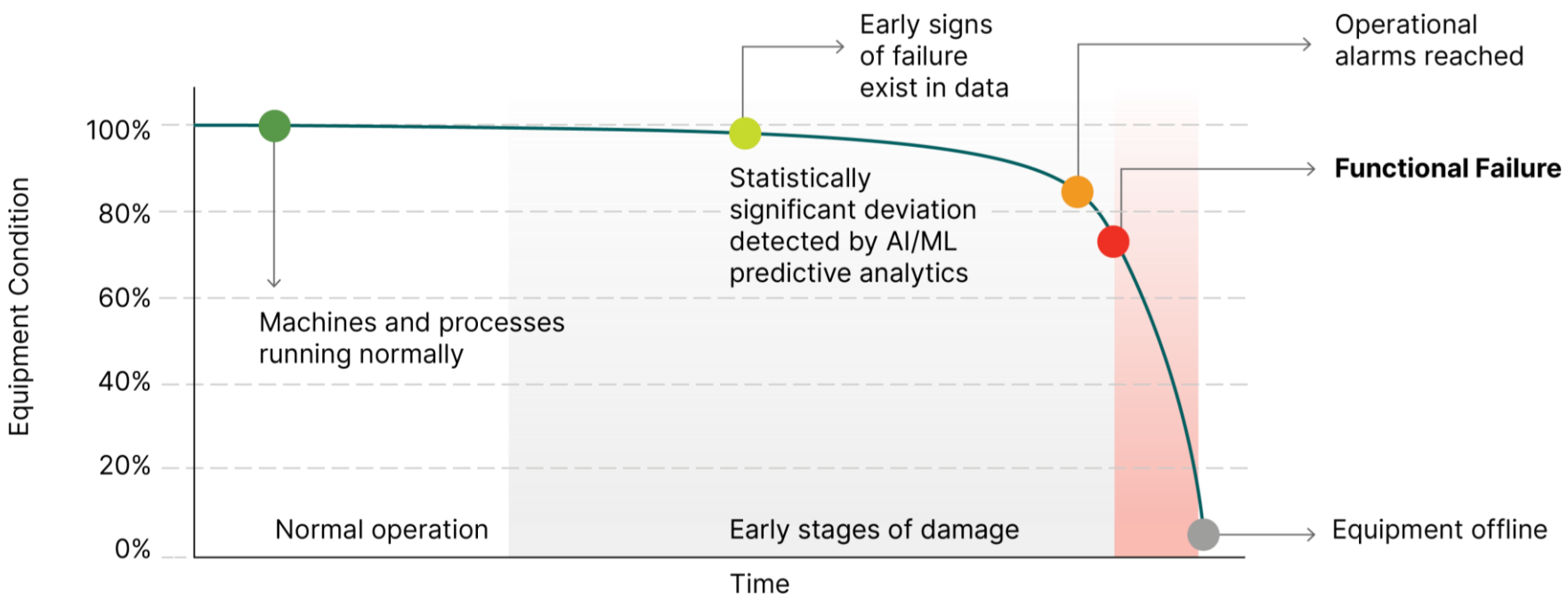


Asset Health and Maintenance Assessment

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Improve Availability with Early Warning



More time =

- Improved availability
- Spare parts planning
- Resource planning
- Know when and if to shut down, plan outage or derate based on failure type
- Increased lifespan of equipment

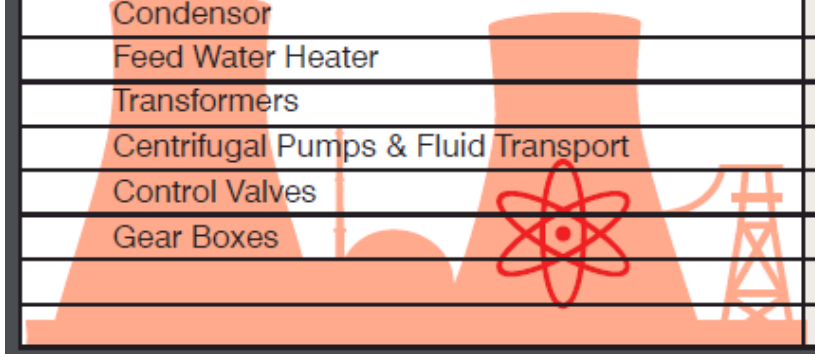
Equipment Existing Digital Twins

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Nuclear Steam Systems

Early Warning of Key Equipment Failure Modes

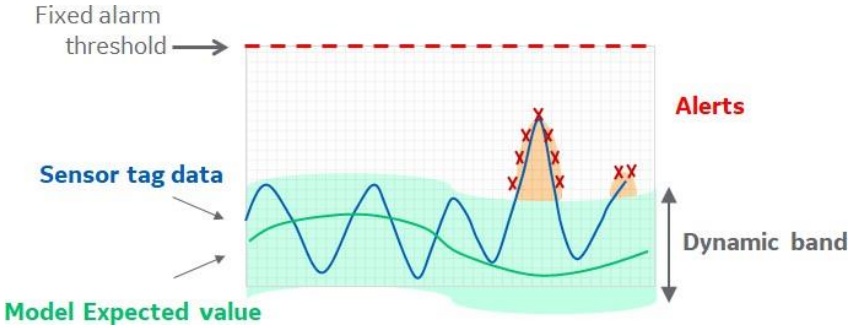
EQUIPMENT TYPES	Performance	Bearing Failures	Lube	Mechanical Damage/Wear	Leakage/Seal Failures	Fouling	Process Deviations	Electrical	Motor/ Drive
Reactor Coolant Circuit				X	X		X		
Reactor Coolant Pumps		X	X	X	X		X		X
Reactor Recirculation Pump		X	X	X	X		X		X
Steam Generators	X						X		
RCP Coolant Pump Seals				X	X				
BALANCE OF PLANT									
Steam Turbine	X	X	X	X	X	X	X		X
Main Feed Pump	X	X	X	X	X	X	X		X
Generator		X	X	X	X		X	X	
Condensor	X			X	X	X	X		
Feed Water Heater	X			X	X	X	X		
Transformers							X	X	
Centrifugal Pumps & Fluid Transport	X	X	X	X	X	X	X		X
Control Valves				X			X		
Gear Boxes		X	X	X			X		



SmartSignal
Diagnose and Forecast Failures

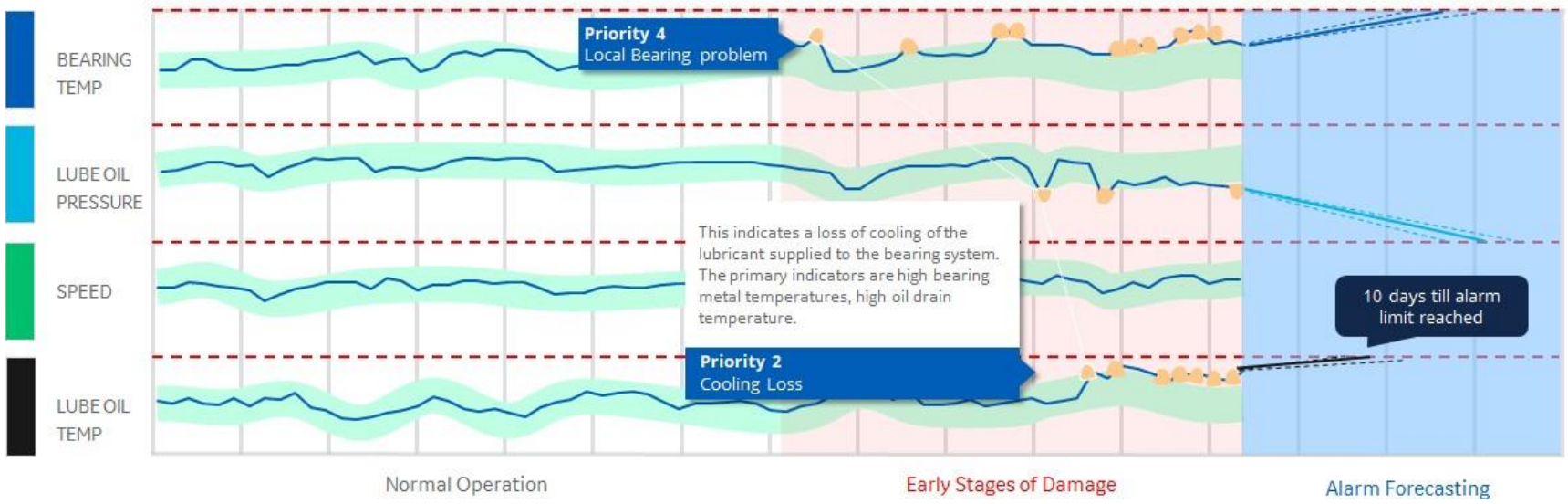
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Predict
Detect any significant patterns of deviation from expected.



Diagnose
Dynamic empirical analysis with high level accuracy and minimal data science expertise required

Forecast
Linear regression modeling enables forecasts to be generated on when an alarm limit will be reached



APM Health Indicator

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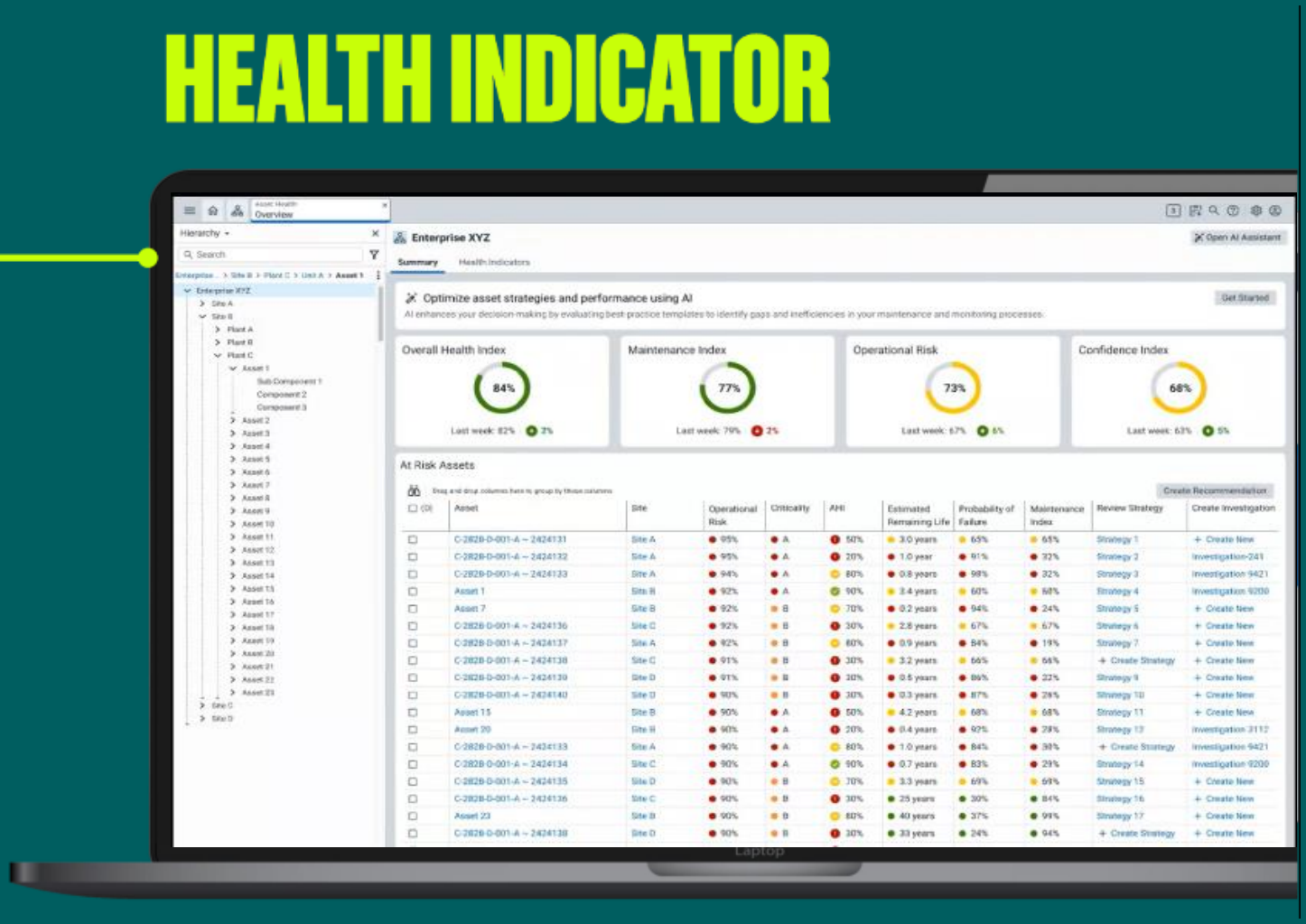
Operator Rounds

Process Historian

Predictive Analytics

Equipment Events

- Calibrations
- Work Orders
- Thickness Measurement
- Vibration
- Many Others...



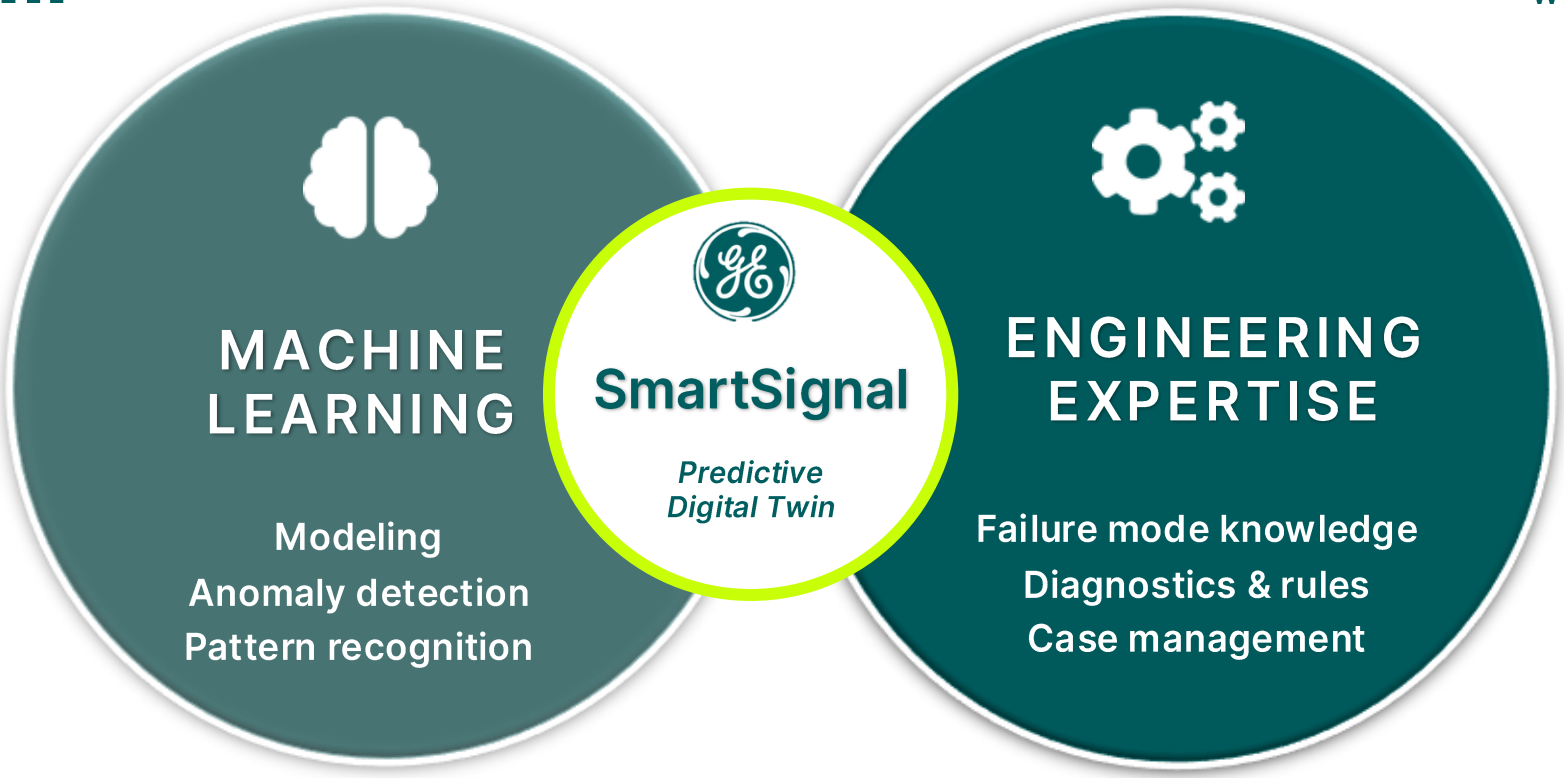
The Fusion - Machine Learning Meets Engineering Expertise

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SmartSignal succeeds where pure-ML projects often fail because it combines algorithmic learning with deep, codified domain knowledge.

WHAT ML DOES WELL

Recognizes complex multivariate patterns. Adapts to operating context. Continuously updates its baseline as the asset's healthy behavior evolves.



WHAT ENGINEERING ADDS

Translates statistical anomalies into named failure modes. Knows what a bearing fault looks like vs. a seal leak vs. a cooling loss - and recommends what to do next.

ML alone produces alerts. Engineering alone produces rules. Together they produce decisions.

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SOFTWARE FOR THE ENERGY SECTOR – LEADING WITH TRUST

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Customers

300+ unique customers across asset intensive industries such as Power Generation, Oil & Gas, Chemicals and Mining & Metals

SUNCOR ENERGY · PETRONAS · Xcel Energy® · SOCAR · sorgenia YOUR NEXT ENERGY · Nova Scotia POWER An Emera Company · TECO AN EMERA COMPANY

Industry Reports

verdantix
Green Quadrant APM Leader (2022, 2024, 2026)

IDC
APM ProductScape Leader for Worldwide Utilities and Oil & Gas Reports, 2026

GE Vernova APM Software By the Numbers

Utilizing proven technology to shape your journey to Asset Intelligence

30+
years defining and pioneering APM

>50%
of the global refining market

>100
enterprise scale energy customers

100M+
assets connected to our APM platform*

860+
strategy/FMEA templates

350+
digital twin blueprints

available to customers in our configured content library

*Includes all asset hierarchies pulled from EAM/CMMS systems into APM

Meridium® APM Outcomes*

- **20%** reduction in reactive maintenance
- **10%** reduction in HSE incidents
- **7%** reduction in maintenance inventory costs
- **5%** reduction in overall maintenance costs
- **2%** increase in availability
- **10%** increase in employee productivity

*Based on SOCAR customer experience. Results may vary.

SmartSignal® Predictive Analytics Outcomes

- **$1.6B+** in production & mechanical losses avoided across the customer base
- **~3.4** months average ROI from kick-off to financial payback
- **$60k - 1M** typical range of loss avoided per catch*

*users have experienced up to $60M

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Customer References | Nuclear

# of units	Reactors
22	8 x PWR, 14 x BWR
8	6 x CANDU
3	3 x PWR
3	2 x PWR, 1 x BWR
2	2 x PWR
38	

including Operating Nuclear Plant in Central Eastern Europe
Project delivered in September 2026


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