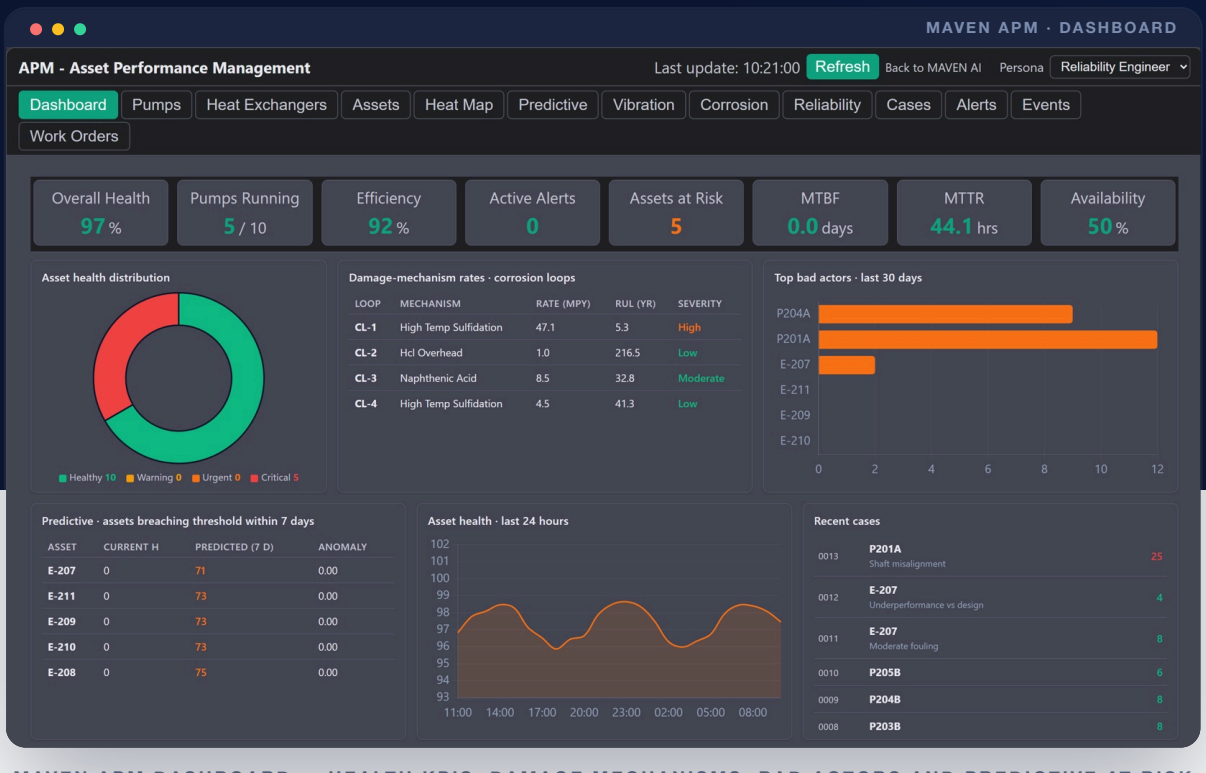
MAVEN APM · ASSET RELIABILITY & PREDICTIVE MAINTENANCE

MavenAPM
Asset Performance Management

MAVEN APM turns maintenance from **reactive to predictive**. Continuous monitoring of every rotating and static asset — pumps, heat exchangers, columns and instruments — builds a live health profile. Physics-based analytics and machine-learning models surface bearing wear, fouling, corrosion and process-driven damage **weeks before failure**, and automatically raise a case with the root fault, causes, consequences and a CMMS-ready work order. Driven by conversation through the **mAvenIt** assistant.



MAVEN APM DASHBOARD — HEALTH KPIS, DAMAGE MECHANISMS, BAD ACTORS AND PREDICTIVE AT-RISK

25–50 %	**15–30 %**	**168 h**	**4 wks**
reduction in unplanned downtime	reduction in maintenance spend	forecast horizon with RUL per asset	to first prioritised bad-actor list

AT A GLANCE

- Real-time asset health scoring with early-failure detection
- Vendor-neutral — any sensor, vibration node, PLC, DCS or historian
- Physics-based damage mechanisms — no new instrumentation
- Predictive scheduling integrated with EAM / CMMS
- On-prem, private cloud or hybrid deployment
- Automatic cases with CMMS-ready work orders

PART OF THE MAVEN PLATFORM

APM	DTWIN	mAvenIt
Asset Performance Mgmt	First-Principles Based Digital Twin	Intelligent AI Assistant

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KEY CAPABILITIES

01	**Dashboard**	One screen with 8 headline stats (health, running, efficiency, alerts, at-risk, MTBF, MTTR, availability), a health-distribution donut, live damage-mechanism rates, top bad actors, predictive at-risk table, 24-hour trend and recent cases — refreshed every ten seconds.
02	**Predictive forecasting**	SSA-based 168-hour forecast per asset, anomaly detection and remaining-useful-life estimation. Learns from historian data and streams live model output back to the KPI cards.
03	**Vibration analytics**	Hann-windowed FFT and Hilbert envelope demodulation surface bearing tones (BPFO, BPFI, BSF, FTF) before the RMS level moves, with ISO 15243 stage attribution.
04	**Damage-Mechanism Advisor**	Plug-in physics library — ships with McConomy sulfidation, HCl overhead and naphthenic-acid calculators for refining; extend with your own industry models without touching the core.
05	**Reliability & bad actors**	MTBF, MTTR and availability roll-ups, bad-actor plots, a criticality × severity risk matrix and pump-curve overlays with the live operating point.
06	**Auto cases → CMMS**	A threshold breach opens a case with the fault rule, causes, consequences and recommended actions, and drops a CMMS-ready work-order XML for any planner.
07	**mAvenIt chat interface**	Natural-language what-ifs — “if we defer this cleaning 30 days…” — answered from live APM state by physics-based analysers, not a search result.

INPUTS & OUTPUTS

INPUTS

- OPC UA / OPC DA / Modbus / MQTT process tags
- Vibration, temperature and acoustic monitoring nodes
- InfluxDB / historian time-series (auto-backfilled)
- Motor protection relay and VFD telemetry
- Corrosion assay, inspection and lubrication records
- EAM / CMMS work-order and asset-master data

OUTPUTS

- Live asset health scores and prioritised work lists
- 168 h forecast, RUL and anomaly index per asset
- Vibration spectra, envelope and fault classification
- Damage-mechanism rates and cumulative damage
- Auto-generated cases and CMMS-ready work orders
- mAvenIt what-if answers · APIs · dashboards · alerts

DEPLOYMENT

MAVEN APM is delivered as a containerised application that runs on-premises, in a customer’s private cloud, or hybrid. Typical commissioning is four weeks from data availability to a first prioritised bad-actor list on one live area — read-only, decision-support only.

- Single-tenant, customer-owned data — no shared cloud database
- Vendor-neutral connectivity to any drive, PLC, controller or historian
- Two-way EAM / CMMS integration via REST or standard connectors
- Hardened options for regulated and critical-infrastructure sites

WHY MAVENPROTECH

Process-grade engineering

Built by industrial process-control engineers — the same reliability and analytics core used across oil & gas, chemicals and metals. Not a thin monitoring overlay.

Sensor-less physics

Damage-mechanism rates, exchanger fouling and pump degradation are inferred from existing process data — no new instrumentation, no meters bolted on.

Auditable, on-prem, private

Every recommendation, override and outcome is logged. Data never leaves the plant boundary — suited to regulated and safety-critical sites.

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