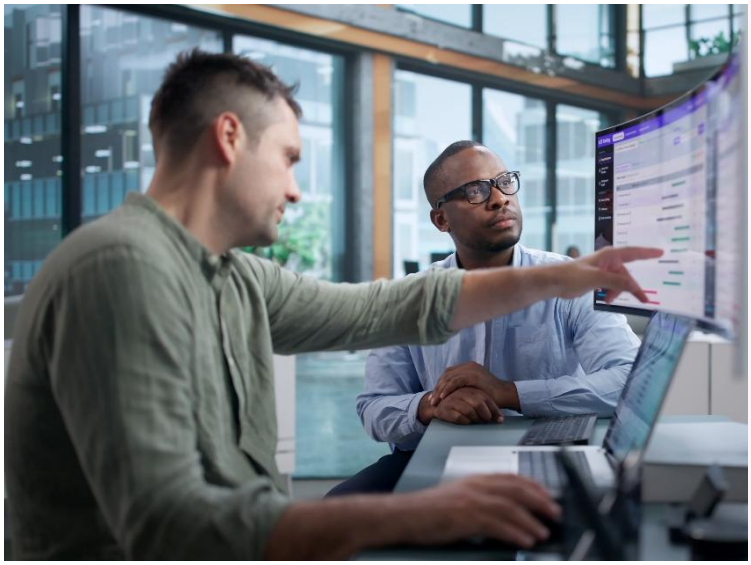


AT A GLANCE

- **Three ways to use our Monitoring and Diagnostics (M&D) expertise:** Full monitoring, on-call expert hours, or an in-depth asset health report
- **Real issues, fast:** Experts separate real problems from nuisance alerts and escalate them for action
- **Your choice of involvement:** Hand over monitoring, keep it and add an expert, or ask for a long-term view of a key asset
- **Same experts and tools in every option:** InsightCM, Advanced Pattern Recognition (APR), and Cutsforth Integrated Diagnostic Models (IDMs)
- **Led by Cutsforth reliability experts:** 600+ combined years of reliability experience



Many organizations have monitoring systems but not enough experienced people to watch and interpret the data. Our M&D services close that gap. You decide how much of the work you keep, from turning over all monitoring to calling on an expert only when you need one. Either way, you keep ownership of your data and get the full value of the monitoring you have already installed.

When does M&D services make sense?

It fits when the monitoring hardware is in place but the experienced people to interpret the data are not.

- Do you collect condition data that no one has time to review?
- Do you want an expert to take over monitoring and notify you when something needs attention?
- Do you monitor your own data but need help telling real issues from nuisance alerts?
- Do you need a long-term, expert view of the health of a key asset?
- Do you need diagnoses and recommended actions, not just alerts?
- Are you struggling to show the value of the monitoring you have installed?

Three ways to work with us

Option	Who monitors	What Cutsforth does	Best when
Monitoring	Cutsforth	Our analysts and experts monitor your data in InsightCM, diagnose what they find, and notify you of issues to review	You want to hand over monitoring and hear from us when something needs attention
Expert hours	You	Our subject-matter experts review the alerts and anomalies you bring them, and quickly tell real issues from noise	Your team monitors the data and wants an expert to lean on
Asset health report	You	An expert reviews an extended period of data for specific assets and reports on their health	You need a longer-term view of a key asset and guidance on what to monitor next

Option 1: Monitoring

We monitor your condition and process data in InsightCM, use APR to detect small changes, and apply IDMs to diagnose the likely failure mode and severity. We notify your people with a recommended action. Front-line monitoring is done by a Cutsforth analyst, with escalation to vibration, electrical signature, and equipment experts. APR and IDMs keep the monitoring insightful and cost-effective.

STEP 1
Onboard and connect
We confirm your asset list and criticality, connect InsightCM and your historian, and agree on notification contacts.
REMOTE

STEP 2
Build the models
We scope assets, select training data, then build and validate the APR models based on the most critical assets and failure modes.
8–12 WEEKS

STEP 3
Startup monitoring
We review alerts with you weekly and tune models by operating mode.
12 WEEKS

STEP 4
Steady-state monitoring
We review your data routinely, notify you of findings, track cases to closure, and maintain the models.
REST OF TERM

Monitoring can start where your program is today and move up as your needs grow:

Level	What it adds	What we deliver
1. APR application	APR on your existing sensors and process data to identify anomalies	APR models on historian data, with anomaly alerts and notifications
2. Additional sensors	Sensors added where failure modes and effects analysis (FMEA) show gaps, plus dynamic signal features such as 1× and 2× vibration	Level 1, plus InsightCM vibration, electrical signature analysis (ESA), electromagnetic interference (EMI) monitoring, and thermography
3. Diagnostics	Multiple algorithms and expert systems for automatic diagnosis	Level 2, plus IDM diagnosis: probable fault, supporting evidence, and severity
4. Prognostics	Algorithms that estimate remaining useful life, and prescriptive work packages	Level 3, plus severity-based relative time to functional failure and recommended work packages

Option 2: Expert hours

Your team keeps monitoring the data in your own tools. When an alert or anomaly needs a second opinion, you bring it to our subject-matter experts. They review the data and tell you quickly whether it is a real issue, how severe it is, and what to do about it. You buy hours of their time, so your analysts spend their effort on the findings that matter.

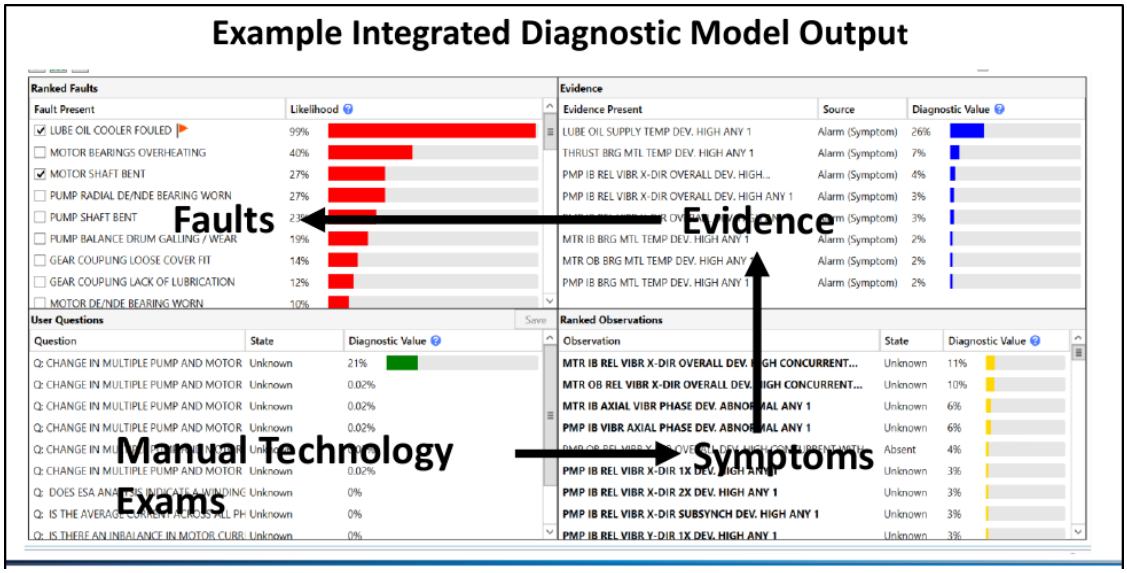
Option 3: Asset health report

Your team keeps monitoring, and a Cutsforth expert takes a longer view of a key asset. The expert reviews an extended period of the asset's data and writes an in-depth report. The report covers:

- The health of each selected asset, based on the extended data review
- Potential issues to watch, and what is driving them
- Recommendations for additional monitoring, such as sensors that would close coverage gaps

How we diagnose

Cutsforth IDMs are built from equipment experts' knowledge of failure modes and condition indicators. Each model breaks an asset into components, sub-components, and failure modes, and records sensor effectiveness, failure likelihood, and recommended actions. IDMs use APR anomalies and alerts as evidence to diagnose automatically, assigning a probability to each candidate fault.



Example IDM output: faults with probabilities, supported by evidence

Each failure mode carries a severity level:

Severity	Meaning
Level 3: Critical	Could cause imminent failure if not addressed immediately
Level 2: Significant	Gradual degradation; likely to fail if not addressed; near-term maintenance needed
Level 1: Minor	Long-term deterioration without immediate functional impact

What you receive

- **Monitoring:** anomaly notifications with diagnosis, severity, and recommended action; case tracking to closure; a monthly equipment health report and review meeting; a quarterly model performance summary; and an annual service review
- **Expert hours:** our experts' assessment of each alert or anomaly you bring, covering whether it is real, how severe it is, and what to do
- **Asset health report:** a written report on the health of each selected asset, with potential issues and recommended additional monitoring

What we need from you

- **All options:** provide secure remote access, such as a virtual private network (VPN), and your historian point lists. Maintain your sensors, data acquisition hardware, and network connectivity, and tell us about outages or configuration changes.
- **Monitoring:** name the plant contacts for notifications, act on recommendations through your work management process, and share work-order outcomes so we can close cases and improve the models.
- **Expert hours:** tell us which alerts and anomalies need a second opinion.
- **Asset health report:** tell us which assets matter most.

The Cutsforth Reliability Services Team

Consulting Services	System Implementation	Monitoring & Diagnostic Services

Cutsforth is one of the few companies that combines deep reliability consulting experience with multi-physics condition monitoring system expertise. Our reliability services team has decades of hands-on, plant-floor experience in equipment reliability and asset performance management.

We help industrial organizations define, plan, and implement ER and AM programs, establish M&D Centers, and apply continuous online monitoring. Our approach is consistent with ISO 55000 and with the good-practice ER process in INPO AP-913 and EPRI guidance.

CONSULTING AND PROGRAM SERVICES

- ER and AM program definition, planning, and implementation
- Asset criticality analysis (ACA), sensor gap analysis, and master equipment list foundational data services
- M&D Center assessment, set-up, and deployment

TECHNOLOGY AND MONITORING

- InsightCM condition monitoring software
- Multi-physics monitoring systems, including vibration, electrical signature analysis, electromagnetic interference monitoring, thermography, and more
- Monitoring and Diagnostic services with industry-veteran subject-matter experts in condition monitoring

Start with a scoping conversation

We start with your goals, then scope the service that fits your team.

Request a Monitoring and Diagnostic Services scoping conversation

Contact your Cutsforth representative or visit cutsforth.com.