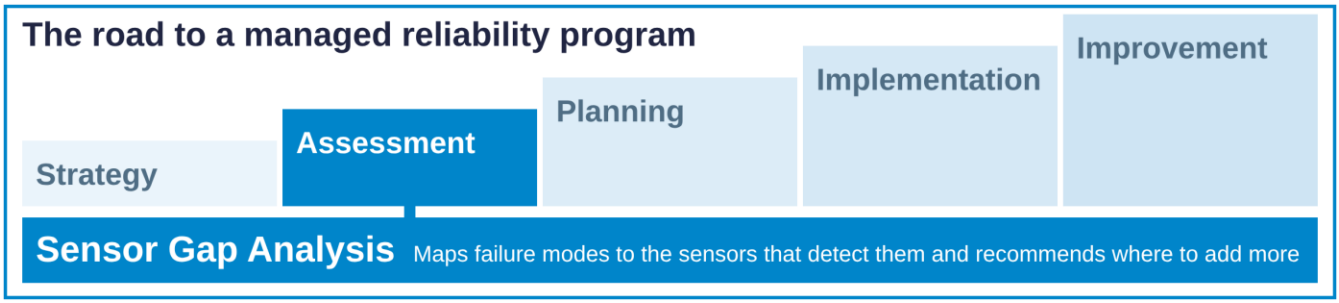
CUTSFORTH
CLARITY. CONFIDENCE. COMMAND.

Sensor Gap Analysis Data Sheet



AT A GLANCE

- **Clear coverage picture:** Every critical failure mode mapped to the sensors that detect it
- **Quick wins first:** High-value sensor additions with cost estimates
- **Business case included:** A phased deployment recommendation built from your forced-outage history
- **Remote or on-site:** A desk-based analysis, or a full analysis with an equipment walkdown
- **Built on Cutsforth IDMs:** Integrated Diagnostic Models (IDMs) for 60+ asset types



Many organizations have online monitoring but not every sensor they need to reach their reliability goals. A Sensor Gap Analysis maps each critical asset's failure modes to the sensors that detect them, finds the failure modes you cannot see today, and recommends the sensor additions worth making, with cost estimates and a business case.

When does a Sensor Gap Analysis make sense?

An analysis fits when monitoring is in place and you need to know what is missing before you spend more.

- Do you have online monitoring in place and still get surprised by failures?
- Do you know which critical failure modes your sensors can and cannot detect?
- Are you planning a monitoring investment and need to know where to start?
- Do you need a business case that connects sensor spend to avoided outages?
- Did an assessment or workshop point to gaps in your monitoring coverage?
- Have you added monitoring one system at a time, without a plan across units?

Two ways to deliver the analysis

We offer a desk-based analysis and full analysis with an on-site walkdown. We recommend the option that fits your assets and your timeline.

Option	Inputs	Site work	Prioritization
Remote (desk-based)	A data request from you: equipment list, criticality ranking, historian and control-system point lists with clear descriptions, and piping and instrumentation diagrams	None	By criticality ranking where available, otherwise by experience
On-site (with walkdown)	The same, plus drawings, maintenance history, and control-system tags	Equipment walkdown, interviews with your experts and management, and verification of sensors, nameplates, and future sensor locations	By criticality ranking, failure-mode coverage, and installation complexity

How the analysis works

Each analysis follows the same four steps. The on-site option adds an equipment walkdown to step 3.

STEP 1
Gather and map
We start with your equipment list, criticality ranking, drawings, point lists, and maintenance history.
REMOTE

STEP 2
Match sensors to failure modes
We map each failure mode to candidate sensors with our IDM workbooks and rate their effectiveness.
REMOTE

STEP 3
Find the gaps
We identify uncovered failure modes, estimate the value of closing them, and flag quick wins.
ON-SITE OPTION: WALKDOWN

STEP 4
Cost and prioritize
We estimate costs, phase deployment, and build the business case.
REMOTE

How we rate sensor effectiveness

For every failure mode, we rate how well each candidate sensor detects it. For example:

Sensor or feature	Failure mode detected	Effectiveness
Accelerometer (1× vibration)	Bearing wear, imbalance	High
Oil level transducer	Lubrication loss	High
Temperature sensor	Stator overheating	Medium
Current signature	Rotor bar defect	Medium
Pressure gauge	Cooling flow obstruction	Low

What you receive

- **Sensor gap workbook for each unit:** existing vs. recommended sensors by asset and failure mode
- **Prioritized sensor additions,** with the rationale for each
- **Budget estimate** for hardware, software, engineering, and installation
- **Business case and phased deployment recommendation,** built from your forced-outage history
- **Report and presentation** to your leadership

The remote option delivers an Excel gap sheet for each unit and a letter report. The on-site option delivers the full set.

What we need from you

- Provide the data request within two weeks.
- Make sure historian and control-system point lists have understandable descriptions. Otherwise, additional effort applies.
- Plan for extra effort on unusual assets, such as pumped storage.

Not included: installation, which is quoted separately.

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 remote or on-site analysis that fits your monitoring program.

Request a Sensor Gap Analysis scoping conversation

Contact your Cutsforth representative or visit cutsforth.com.