

Plantwide Asset Health Management for reduced costs and increased productivity

Every asset

A plantwide solution from Baker Hughes addresses every asset in your organization that merits condition monitoring, whether rotating, reciprocating, or fixed. It draws on our entire portfolio of hardware to deliver a right-sized data collection approach, tailored to the needs of each asset: continuous online, intermittent online, or portable offline. It's all brought together on a single piece of glass with our Cordant™ Asset Health, built on System 1™, software that not only delivers powerful tools for diagnostics and visualization, but also embedded intelligence combining your own expertise and our expertise.



Continuous



Intermittent



Manual



Rotating



Reciprocating



Fixed

Cordant™
Asset Health,
built on
System 1™

Every data type

Asset health is more than vibration. For many assets, there may not even be a typical complement of “machine condition” sensors such as vibration, bearing temperature, and speed. Process data can be a very powerful tool on not just fixed assets, but rotating/reciprocating assets to augment the data from dedicated condition monitoring sensors. Nobody makes it easier to introduce process data to your asset health environment than Baker Hughes. And because data collection and data analysis is highly dependent upon machine state, our plantwide ecosystem can trigger data collection, suppress data collection, and normalize data in all the ways needed for accurately assessing asset health.



Vibration



Process



Machine state

Cordant™

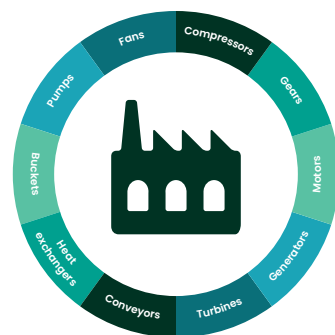
Learn more

Contact us to learn more about Cordant™ Asset Health

bakerhughes.com/cordant

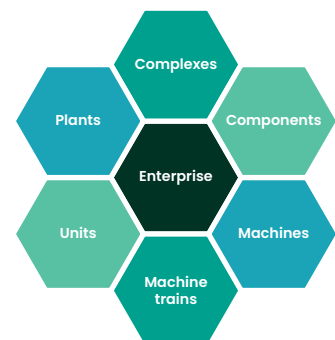
No asset left behind

While many assets—such as fans, motors, and pumps—are consistent across industries, many others are not. Plantwide in pulp and paper means the ability to address paper machines, winders, pulp refiners, and more. In the metals industry, it means things like rolling mills, grinders, cranes, and blast furnace blowers. In mining, it means things like SAG mills, shovels, trucks, and slurry pumps. Likewise, we could talk about kilns in cement plants, aeration units in water treatment plants, and centrifuges in pharmaceutical plants. A plantwide solution from Baker Hughes can address all the assets pertinent to your operations, ensuring none are left behind.



The power of scale

Scalability is key in plantwide solutions. They must reach from individual components—like bearings, seals, and couplings, to machine trains, process units, entire plants, and eventually the enterprise level as more and more operators look toward enterprise-wide visibility of their assets and centralized teams to manage them. Baker Hughes' plantwide solutions scale from the machine all the way to the enterprise.



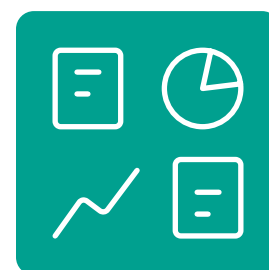
You + us + AI

Plantwide typically means the number of monitored assets goes from several dozen to several thousand—or more. Managing alarms from thousands of assets is no longer how today's best practitioners are getting first-quartile results. They're embedding their own knowledge, they're leveraging our knowledge, and they're relying on powerful, cloud-based AI and machine learning to direct them to the assets that need attention while going beyond just anomaly detection and offering fully prescriptive diagnostics.



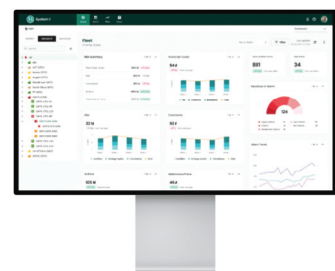
Your choice: DIY, aaS, or hybrid

If your industry treats asset health as a necessary core competence, you have no-doubt aligned staff and budget accordingly. Many industries, however, want the benefits of asset health information without the burden of owning and installing infrastructure, gathering data, or interpreting data. We've got you covered with our as-a-Service, subscription-based solutions that shift the responsibility for all those things onto our shoulders. We can also blend the two approaches, such as your team focusing on the relatively few critical assets while we take care of the rest.



Going beyond asset health

Asset Performance Management (APM) has taken the industry by storm. It looks holistically at all the things you do to manage assets—the strategy you use to decide what approach to take with each asset, the tools and information you need to not just identify defects, but eliminate them, and the tools and systems you use to execute work, order and stock parts, track labor, and more. Baker Hughes is ideally positioned to help you achieve true APM because we address every aspect with a powerful, integrated solution that allows you to make operating decisions within the context of risk and reward—not just asset health.



Making the case for plantwide

The case for monitoring critical equipment has always been clear. Since the 1970s, monitoring “the big stuff” has moved from just good engineering practice to standard operating practice. Meanwhile, the business case for monitoring less-critical equipment (so-called “balance of plant” or “plantwide” assets) began to appear in the mid-1980s with the advent of route-based portable data collection programs. Today, a greater percentage of these assets are going on-line because technology costs are falling and labor costs are rising. Our plantwide solutions are tailored to deliver the right mix of online and offline approaches because they will often co-exist. Offline programs are frequently already in use for many customers and so the question is whether the move to a greater percentage of online can be financially justified. Below, we’ve summarized the results from two very different customers that took a greater percentage of their plantwide assets online.



Machine Health (as a Service)

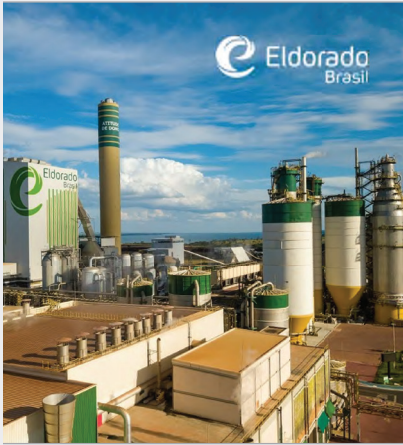


Site: Nylon fibers plant, Kingston, Ontario, Canada
Machines: 55 (60% are pumps)
Impetus: Proof-of-Concept project for enterprise-wide digital transformation to improve machinery reliability/machine health
Technology: Wireless sensors, cloud-based AI, remote expertise
Solution: Cordant™ Machine Health (as a Service)

Oct 2022 – Mar 2023

\$4.2MM+ Total savings	275 hours Downtime avoided
5 Machine saves	7.5 weeks Time to ROI
1 day Time to insights	14 days Time to initial value
1 Event pending quantification	5 Events pending repair

Machine Health (DIY)



Site: Kraft Pulp Complex, Três Lagoas-MS, Brazil (1.8M tons/yr)
Users: Eldorado’s in-house maintenance specialists
Machines: Various pumps, motors, purifiers, etc.
Project: Failure Prediction proof of concept (11/2019 – 2/2020) using wireless IIoT sensors
Technology: Wireless sensors, ISA100 gateways, Cordant™ Asset Health, built on System 1™

Nov 2019 – Feb 2020

\$2.1MM+ Total savings	
\$0.3MM Motor bearing failure detected on secondary pulp purifier, allowing planned maintenance and averting lost production	\$1.8MM Motor bearing failure detected on bottom digester cooling booster pump, allowing planned maintenance and averting lost production