



Machine Health?

What it is. Why it matters. How to achieve it.

Baker Hughes 


AUGURY

Two starting points. Same destination.

Depending on where you're starting your journey, this eBook may or may not best reflect your situation. That's why we've created two eBooks—they both lead to similar outcomes, but each is tailored for a different audience. The first step is self-assessing which of the following best describes your situation:

1

Starting point

- You work in the general manufacturing industries
- You have never heard of Bently Nevada and aren't using our solutions
- You're struggling with machinery reliability and downtime
- You've become good at fixing problems but not detecting them until it is too late
- Your incumbent methods are underperforming
- You lack embedded expertise to diagnose machinery issues using vibration and complementary technologies
- You're under pressure to address KPIs that seem contradictory and impossibly ambitious—such as less downtime but with fewer people or the same number of people to address a growing enterprise



You'll be better served by reading our companion piece located here.

2

Starting point

- You're in the power generation, oil and gas, petrochemical, mining, or similar heavy industrial space and you're an existing Bently Nevada customer, meaning you probably have turbomachinery protected by our monitoring hardware
- You're well-acquainted with the value story for condition monitoring and don't need additional convincing
- You're already well along your journey and simply need help with a new class of machines that were previously unmonitored or addressed with manually intensive, route-based methods

You're in the right place. Keep reading.

Same machinery. Different results.

Machines support nearly every aspect of modern society. We rely on them to produce everything from food to fuel, medicine to metals, paper to plastics. Collectively, machines drive 85% of GDP in developed economies¹.

When machines fail or underperform, production lines break and supply chains suffer. An estimated 10% of global productivity is lost due to unexpected machine failures². That loss does not include the additional and hidden impact of underperforming machines on the systems, processes, and people around them.

As our reliance on machines increases, so does the need for ways to make them more reliable, efficient, and effective. In response, the fields of maintenance and reliability have evolved to offer a variety of measures to reduce the risk of failures—ranging from reactive to preventive to predictive to prescriptive. Further, asset performance management processes have been developed to maximize the value of those machines over their lifespans.

And, yet, machines keep failing—not because the capabilities to prevent failure don't exist, but because they are either not being applied at all or are being applied in ways that leave substantial room for improvement.

Ironically, as important as your machinery is, the machines themselves are not what differentiates you. Quite to the contrary, in all asset-intensive industries and with few exceptions, every manufacturer in your sector has access to the same machines and components, the same energy sources, the same basic raw materials—and, often, even the same pool of skilled and unskilled labor.

So, how do you obtain competitive advantage through machinery that is, in a very real sense, a commodity?

By learning how to get the most from those machines.

It's a simple and powerful imperative that can determine the fate of entire industries.

¹ McKinsey 2017, <https://www.mckinsey.com/business-functions/operations/our-insights/optimizing-production-in-the-age-of-the-machine>
² National Association of Manufacturers 2016

Questions that deserve answers.

In the following pages, we'll explain how to get the most from your machinery by unpacking:

- Why machines keep failing
- Why it's not enough to simply have a condition monitoring program
- Why, even if you do have a condition monitoring program in place, conventional methods are simply not working as well as they once did and are falling short
- How technology has evolved to enable solutions that weren't previously possible
- Why technology alone is only part of the answer—in other words, why a provider that can deliver more than technology is increasingly non-optional

We'll also help you understand what kind of results you can expect when you're getting the most from your machines.

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Why do machines keep failing?



There are three primary reasons that machines keep failing. See which best describes you.

1. No machine condition data^{3,4}

Outside of large turbomachinery⁵—which usually accounts for a tiny fraction (<2%) of a facility's total machinery population—most companies do not continuously monitor the health and performance of their machines (if you do monitor your machines, see #2 on the next page).

In other words, 98-100% of machinery is not monitored in most companies. Instead, they rely primarily on maintenance strategies based on running hours or calendar intervals to perform “preventive” maintenance—so-called because it seeks to prevent failures by performing maintenance before the component fails.

Ironically, it has been known since the late 1970s that only 11% of failures can be predicted using running hours or a calendar⁶. Put another way, almost 90% of failures can't be properly addressed by a preventive strategy. However, the

problems with a preventive strategy don't stop there. Such an approach can actually introduce problems where none previously existed and, far from being rare, can account for an up to 60% increase in downtime. Nor is this a new finding. The phenomenon—known as the *Waddington Effect*—was first documented 80 years ago during WWII⁷.

Consequently, despite its name, this outdated model is unable to prevent most operational disruptions.

3 Because this eBook targets those of you that are already using Bently Nevada for monitoring and protecting your turbomachinery, it is assumed that you already understand the importance of condition monitoring and thus likely fall into categories 2 or 3. We do not here spend considerable time building the so-called “case for condition monitoring” but there are many excellent references available (see 4 below) for the interested reader.

4 For a particularly good discussion of the benefits of predictive (i.e., condition-based) maintenance, see Mobely, R.K. “*An Introduction to Predictive Maintenance*” pp 60-73. 2nd Edition. Butterworth Heinemann, 2002.

5 If you are one of the exceedingly rare operators that does not monitor your turbomachinery, rest assured that Bently Nevada can help you—we've been doing that for more than 60 years. However, such machines are not the focus of this discussion. We are instead concerned here with the other machinery across your enterprise, typically incorporating rolling element bearings and characterized by smaller power outputs. Hundreds or thousands of such machines exist in many manufacturing facilities, and tens or hundreds of thousands across multi-site enterprises.

6 US Department of Defense. Report AD-A066-579 “*Reliability-Centered Maintenance*” Nowlan, F.S., Heap, H.F. December 1978.

7 Waddington, C.H., O.R. in World War 2: operational research against the U-boat (London: Elek Books, 1973)

2. Machine condition data is available—but is manually collected and interpreted

For those who do monitor more than just their turbomachinery, a problem still exists: the way in which they monitor their machines. While machine failures may be reduced, they are neither minimized nor achieved at lower cost.

Portable data collection is not going to keep operators competitive.

Portable data collection first appeared in the early 1980s to address machines that didn't justify the cost of a permanent monitoring system—which, at the time, had to be hardwired, represented installed costs of around \$3,000 per measurement point, and required a full-time vibration expert.

So-called walk-around programs circumvented these costs with a single, portable instrument that could address hundreds or thousands of assets⁸, but required people to do everything: walk to the machine, collect the data, set alarms, react



to alarms, interpret the data, and act on the data. Very little has changed in the intervening 40 years. It's still a manual process. Meanwhile, the cost of labor has increased by a factor of four during those same 40 years⁹ from an average of \$7/hr to nearly \$28/hr. To save money, operators may scale back from monthly data collection to quarterly or semi-annual.

But many defects progress faster than these collection intervals—hence, a catch-22.

Manual data collection programs also suffer from another fundamental problem: scalability. In other words, there's very little leverage available under such an approach when increasing the collection frequency or the number of assets or sites.

Halve the collection intervals? Double the hours.

Double the assets? Double the hours.

Double the sites? Double the people.

That's exactly the opposite of modern digital transformation initiatives that must be both effective and scalable. In fact, the number-one reason companies report that their digital transformation efforts get stalled at the pilot phase is that they do not scale efficiently to plantwide or enterprise-wide, multi-site implementations. A manual data collection approach at one site simply can't be scaled to a dozen or more others with any meaningful economies of scale.

There's yet a third problem with manual data collection. It can be summed up in the simple phrase "detection is not correction". Portable data collection programs devote the bulk of the required labor to detecting problems. Once a problem has been detected, it must then be acted upon. Industry's best performers are using their people to correct identified problems while saving precious headcount by harnessing technology to detect problems. In contrast, those that are not harnessing technology are devoting most of their headcount to detection with very little left to take corrective action—let alone defect elimination action.

Outsourcing a manual data collection strategy doesn't address long-term competitiveness, either. It merely shifts tasks to an outside entity without addressing a fundamental cost structure tied inextricably to labor. Whether it's your labor or someone else's labor, you still have to pay for it.

⁸ Current industry practices for manual data collection program staffing equate to one person for every 1,500 machines monitored per month. This assumes that the person collecting the data is also capable of interpreting the data and diagnosing problems. When a division of skills is employed, this will typically increase to at least one vibration analyst per site coupled with one or more data acquisition personnel. Some sites use process operators to collect data and an analyst to interpret/diagnose it.

⁹ Source: US Bureau of Labor Statistics

3. Lack of defect elimination

An often-overlooked area for many operators is defect elimination. Even those who have a condition monitoring program are often so focused on correcting problems that they miss the all-important issue of eliminating problems.

Consider, for example, a KPI of Mean Time To Repair (MTTR) coupled with an intentionally exaggerated scenario: a machine that breaks daily yet whose failure can be detected in advance with perfect accuracy using condition monitoring, allowing flawless “just-in-time” intervention. Further assume that you effect the repair so often (daily) that you become quite good at it—reducing from 60 minutes initially to just 15 minutes after a month. If this machine runs 24/7 and this is its only failure, you incur 105 minutes of downtime per week, or an availability of 98.96%. You have also improved your MTTR by 75%.

While that might seem impressive, it still misses the mark considerably.

Instead, imagine you were able to find the root cause of the failure and eliminate it so that the machine now fails only twice every 12 months. Further imagine that it takes four hours to fix, and thus your MTTR goes from 15 minutes to 4 hours (a 16-fold increase). However, by eliminating the defect instead of just correcting it every time it occurs, you have increased your availability to 99.91% with downtime of only 8 hours per year instead of 91.25 hours per year. Finally, imagine you have 100 similar machines in your organization and the same defect-elimination remedy can be applied to all of them. A collective 9,125 hours of downtime per year has been reduced to just 800 hours¹⁰.

That’s the power of defect elimination.



10 This example also shows why KPIs must be chosen carefully and translated to business results. MTTR increased by 16-fold but resulted in a net downtime reduction of 8,325 hours.

What is Machine Health?

Machine Health is a simple concept, not unlike the health of a modern vehicle, which serves as an excellent analogy.

Modern vehicles are leagues ahead of those built even 20 years ago because they have sensors not found in prior generations. As a result, they can self-detect a plethora of problems—ranging from simple to complex—and even generate highly prescriptive diagnostic advisories:

- Repair evaporative system leak before next smog certification is due
- Replace burned out tail lamp
- Change engine oil and filter within next 1,000 miles
- Top off brake fluid immediately
- Tighten loose gas cap
- Battery charging to only 73% of as-new capacity—inspect both battery and charging system

In other words, **the vehicle itself** is now capable of this level of monitoring, diagnostic codes, and even prescriptive actions.

The most advanced vehicles take things a step further by conveying data to the cloud, comparing it with the data from other similar vehicles, and providing even more accurate diagnostics and time-to-failure advisories than if the only benchmark and source of data was your own vehicle's history.

Everything we have just described for vehicles is available for your industrial machinery. But it's not simply analogous—it's actually superior because it can be retrofitted to your existing machinery, requires no incremental increase in headcount, provides ROI of 3X to 10X in a matter months, and often begins providing actionable machinery insights within the first month.

In short, today's vehicles are "smart"—and your industrial machinery can be smart, too.



What enables Machine Health?

The same ingredients that have made autonomous health assessment possible for modern vehicles, are also present for industrial machinery:

- An adequate number of robust, affordable sensors to continuously capture necessary condition data¹¹
- The combination of human¹² and artificial intelligence (AI) to detect failures and prescribe remedies
- Scalable deployment and reliable outcomes¹³
- A highly engaging and accessible user software experience available in the cloud via a browser

Machine Health, in a nutshell, uses the Industrial Internet of Things (IIoT) and Artificial Intelligence (AI) technology to predict and prevent industrial machine failures, and improve machine performance.

The necessary technology is available today and has completely changed the game. Any asset can become “smart” through rapid and affordable brownfield deployment.

¹¹ Cordant™ Machine Health solution uses sensors that simultaneously collect vibration, temperature, magnetic flux, and machine speed data.

¹² Human expertise is used in Cordant™ Machine Health solution to validate AI findings, provide context, and deliver recommended corrective actions.

¹³ While vehicles typically use conventional wired networks and sensors, Cordant™ Machinery Health solution uses wireless sensors and predominantly wireless networking for rapid deployment in industrial environments to provide highly reliable communications while maximizing use of non-invasive infrastructure.

How is Machine Health delivered?

In a conventional delivery model, all the enablers on the previous page would be your responsibility—your burden.

We get it. For most companies, that's not just inconvenient—it's a dealbreaker.

That's why we deliver Machine Health as an affordable, subscription-based service, within reach of any company.

- We install the sensors
- We own and maintain the infrastructure
- We receive and diagnose the data using cloud-based, purpose-built AI
- We provide diagnostic validation and prescriptive analytics using human expertise

- You take action on your assets based on 99% diagnostic accuracy and recommended corrective actions provided by deeply experienced machinery experts
- You view your machinery health and recommended actions using nothing more than a browser and log-in credentials

If that sounds simple, it's because it is.

To understand why our delivery model is just as revolutionary as the technology we use, consider just two unwieldy aspects of incumbent approaches: scalability and capital outlay.

Scalability

As previously noted, a significant problem with incumbent solutions is that they are very labor intensive. As such, they become almost impossible

to deploy at scale. They are primarily investments in a larger labor force without any corresponding leverage—whether that labor force is your own or a third-party provider's.

Capital outlay

A conventional delivery model requires you to purchase and own the infrastructure. Although you may ask the provider to install and maintain it, you are still responsible for raising and shouldering the entire capital budget as a lump sum. You then must invest in the people necessary to run that system. You must buy the sensors, network appliances, software, and computers. As a result, the payback hurdle becomes almost impossibly large—particularly when other investments have faster ROI and executives are evaluating your initiatives against those of other departments. While such comparisons may not feel fair, they are a reality.

A subscription-based model completely changes the game.

The outlay becomes small.

The ROI becomes large.

The time-to-value becomes fast.

And we win only when you win.



What 11 issues are addressed by Machine Health?

1. Machine Health reduces expensive¹⁴ unplanned downtime

Because your machines are monitored 24/7/365, developing problems are detected before they progress to failures. Downtime is not only reduced, but also converted from costly unplanned downtime to less-costly planned downtime¹⁵.

2. Machine Health frees personnel to engage in higher-value activities

Because accurate, prescriptive diagnostics are delivered directly to you, your team can now focus on correcting problems—not detecting them. Our supplementary services can also help you progress in your reliability journey by moving you from defect correction to defect elimination by teaching you the skills to do this, delivering the technology to accomplish it, and better informing your asset reliability strategy.

3. Machine Health delivers a single, accurate version of the truth

Because your machines are continuously monitored, health is no longer a matter of conjecture or opinion. A single version of the truth is available across the entire organization, eliminating contentious debates caused by differing systems and interpretations.

4. Machine Health requires no resident vibration expertise

Many companies simply cannot afford to maintain a resident vibration expert—nor is it considered a desirable or necessary core competence. Machinery Health frees you from this burden because we maintain the expertise and it can be scaled across tens of thousands of assets very cost effectively. We can do this via a relatively small contingent of experts because AI is leveraged so heavily in our solution. AI detects problems. Humans validate them and tell you how to respond.

5. Machine Health requires no expensive capital outlay or lengthy commitments

Machine Health is offered as a subscription-based service that's highly affordable and flexible. The cost of entry is small because it is amortized over many assets and an extended period.

6. Machine Health delivers value quickly and keeps delivering value

In a conventional delivery model, you would purchase everything upfront and hope that enough machinery "saves" are compiled over the system's lifetime to eventually recover your costs. Because the initial capital outlay is so high, it takes either

a large number of saves or a smaller number of spectacularly large saves to meet and exceed the payback threshold. While ROI is often met, it takes longer and reflects a higher risk that's entirely shouldered by you as the user rather than us as the provider. A subscription-based model completely changes that dynamic. The cost is smaller and the value threshold is lower, yet you have the benefit of the entire system on every enrolled asset from day 1. If value is not delivered, users will not renew their subscriptions. This business model shifts risk to our shoulders far more than in the past and ensures that users continue subscribing only when they are receiving ongoing, measurable value.

7. Machine Health is scalable

Digital transformation initiatives are typically selected because they impact an entire enterprise, not just a single site or business unit. When an initiative cannot scale, it cannot impact your operations as profoundly as one that can. Scalability with Bently Nevada Machine Health is assured through AI versus approaches that scale linearly and rely on twice as much labor for twice as many assets.

¹⁴ Downtime averaged across all industries is \$22K per minute.

¹⁵ Unplanned downtime in the continuous process industries ranges from 3X to 6X more costly than planned downtime. Although the differential is less in manufacturing industries, it is still 2X or greater due to expedited parts costs, overtime labor costs, and other factors.

8. Machine Health represents minimal burden for IT and OT

Your IT and OT teams often have so much on their plates already that managing anything new on their existing infrastructure can be a showstopper. Machine Health has a dedicated ISA100 network that then leverages LTE capabilities from the respective gateway, never putting the burden on your IT or OT teams. Our team maintains the IoT health and infrastructure for you. There are no on-site server requirements or special “thick client” applications. There’s a user interface that literally runs on your browser. The solution’s simplicity is scalable and user-friendly. The solution is designed to work securely in even the most restrictive IT and OT environments and greatly reduce the time needed for their review and approval. And, because we install and maintain all the necessary infrastructure—which remains entirely independent of your own infrastructure—concerns about sharing infrastructure and the unpredictable impacts that might have can be greatly reduced.

9. Machine Health is not limited by your enterprise’s assets

The embedded knowledge of conventional approaches is usually limited to the assets in your own organization. If you have 100 pumps, your knowledge of pump malfunctions is limited to those 100. If you have 50 blowers, your knowledge of blower malfunctions is limited to those 50. Because Machine Health is a cloud-based solution, we have access to a database spanning a myriad of similar assets with over 100 million machine hours monitored. This results in more accurate diagnostics, better pattern recognition, and AI that continually grows in capability. At the same time, your data remains secure because it contains no company- or process-specific information.

10. Machine Health is part of Cordant™ Asset Performance Management

Cordant™ Asset Performance Management (APM) is a suite of solutions combining Asset Health Management, Asset Strategy, and Asset Defect Elimination. When all these are working harmoniously,

you are truly managing the performance of your assets and getting the most from your machinery. However, when a population of assets is left out of this equation, you may have APM, but it’s not addressing your entire enterprise. Cordant™ Machine Health is one part of a holistic Cordant™ APM offering designed to address all your assets and to deliver all the components necessary for not just APM, but truly integrated APM. It is delivered as a subscription-based service as part of our Cordant™ suite of software solutions and fits seamlessly within it, using a seamless, intuitive, web-based user interface.

11. Machine Health favorably impacts ESG¹⁶

With today’s emphasis on Environment, Social, and Corporate Governance (ESG), companies are looking for multiple ways to boost their ESG score.

- 40% of companies consulted¹⁵ are using asset monitoring to improve ESG scores
- 12% annual reduction in emissions—exceeding 26t cumulatively in next 20 years¹⁷
- \$3.3B in waste avoided¹³
- Healthy machines are more efficient, waste less energy, are safer to work around, and less prone to catastrophic failures with environmental consequences (such as fires or toxic substance leaks)

16 “The ESG paradox: policy vs. practice” Plant Services: Market Insight Report, July 2022 (www.plantservices.com)

17 Source: <https://www.augury.com/esg-sustainability/>

Why AI?

AI is an essential ingredient in Machine Health.

Why?

Because, as important as people are, there is only so much they can do in terms of scale. As has been discussed, a significant problem with incumbent approaches is that, although a single person may be able to monitor several hundred online assets, there are no opportunities for significant economies of scale. For example, if a human can handle the data from 400 monitored machines¹⁸, monitoring ten times as many machines simply means ten times as many humans. There's no leverage—and that's a big problem.

The AI incorporated in Cordant™ Machine Health suffers from no such limitations. It can monitor 400,000 assets as easily as 400.

With Cordant™ Machine Health, although each machine requires its own sensors, it does not require its own cloud or AI. A one-to-many approach is used. This means a single human specialist can now support tens of thousands of machines because the AI is reviewing the data and performing diagnostics, and the human expert can simply “manage by exception” based on issues flagged by the AI. The AI does not return “abnormal vibration”—it returns “machine unbalance” or “loose foundation bolt” or “worn bearing outer race due to shaft misalignment”. A human then validates the AI's preliminary diagnosis, provides intelligent advice on the severity

of the issue and recommended corrective actions, and notifies the user through the platform interface. This assures better than 99% diagnostic accuracy without needing an army of personnel with deep machinery expertise. A small number of experts can service an extremely large number of machines. This has a dramatic effect on, not only the number of machines that can be serviced by a small staff, but on the corresponding costs.

This matters to you as a Machine Health subscriber because you are no longer setting and managing hundreds or thousands of alarms, reviewing data using tedious manual processes, or acting as a vibration expert to diagnose problems.

You're responding to intelligent advisories as part of a program with cost structures and accuracy only available when AI is at the heart of the solution.

¹⁸ This is typical of service providers for wind turbine fleet monitoring where a single individual can typically handle a dashboard comprising no more than 300-400 machines.

Why can you trust the AI in Machine Health?

Nobody knows better than us that AI has left a bitter taste in many mouths. In fact, in a September 2022 survey¹⁹ of our customers, nearly 50% told us they felt the promises of AI were “too good to be true.” And 27% also told us they’d tried AI in other solutions from other providers but were disappointed in the results. In short, AI in the past has overpromised and underdelivered.

As a result, for many customers, the mention of AI elicits a negative response.

So, why is the AI in our Machine Health solution different? Because it’s tailored for the application and because we ensure that the results of AI diagnostics are validated by human expertise.

We call the AI in Machine Health purpose-built AI. That means it doesn’t have to be “trained” by tediously feeding it historical data. It already knows

what pumps are, how they vibrate, how they fail. The same goes for motors, blowers, compressors, fans, and many other assets. It even knows the types of sensors we use so it can distinguish sensor problems from machinery problems. Unlike a human, it can pore through megabytes of data in milliseconds looking for anomalies. And, when it finds something, it matches it to known faults, and alerts a human expert who then validates the finding before passing it along to you with necessary context and recommendations.

Our approach is unique—and simply not reflected in any other competing AI solution.

Most AI solutions rely on pure data science. They look for anomalies but don’t know what the anomaly means because the system isn’t purpose-built and has no domain expertise. It means the system must

be trained with historical data and must learn about your application—like a newborn discovering its world. That takes time and costs money. And it often requires embedded, highly specialized personnel to make it all work. This describes why most AI has been a failure for all but the largest companies that can afford the care and feeding such a system requires.

We understood that such an approach is simply not going to work for people who rightfully demand fast, affordable solutions.

It’s why the AI in our Machine Health solution is different.



What kind of results can you expect?



3X to 10X
ROI in a matter of months

<30 days
Average time to value

>95%
Detection accuracy

>99%
Diagnostic accuracy

4–6 weeks
Deployment time

Bear in mind that these results are typical—not the extraordinary results of carefully selected outliers.

Can you really afford to walk past something with such compelling results?

There's a phrase in our business called "dusty keyboard syndrome" and, perhaps, nothing else better summarizes technology that doesn't deliver value. Machine Health keyboards don't get dusty because customers find the system simple to use, see value continually, and actively use it.

Messages arrive.

Machine issues are identified.

Corrective actions can be planned.

It's really that simple.

Beyond the compelling results and simplicity, there's another way we go the extra mile to ensure success: through a Customer Success Manager (CSM) as part of your subscription. The CSM helps you track wins, communicate across disparate parts of your organization, share best practices, translate machinery insights into business results, and more.

We win only when you win.

Why Bently Nevada?

For customers in the power generation, oil and gas, and other machine-intensive industries where turbomachinery is found, Bently Nevada has been a well-known name and recognized leader for more than 60 years. Not only did we pioneer much of the instrumentation used, but also the diagnostic concepts for this critical class of machinery. Although we're less well-known outside these industries, our machinery expertise is just as applicable because the solutions we deliver are designed to address every type of machine—regardless of criticality or industry. We're also the largest provider of such solutions, which means we'll be there tomorrow to service and support what we sell today. And, when it comes to focus, machinery monitoring and reliability improvement is all we do.

In a changing world, that stability and that focus is more important than ever.

Why Augury?

Augury brings purpose-built AI to the table that's a perfect fit for the class of machinery encompassed by our Machine Health solution. That's why we say it's powered by Augury. The solution is already monitoring hundreds of thousands of machines around the globe, and this means your machinery can instantly leverage all of that embedded knowledge and power.

Proven technology that's already delivering proven value.

What next?

In this eBook, we've introduced you to a revolutionary way to get more from your machinery. We've described an innovative subscription-based model that dramatically lowers the price of entry and brings Machine Health within reach of even the smallest operator. We've shown how AI completely changes the cost structure compared to conventional approaches without removing vital human expertise at the right places in the sequence from initial anomaly detection to intelligent notification. We've shown how operators are obtaining head-turning ROIs through a solution that can be scaled to the largest enterprises and thereby delivers on the promise of digital transformation at scale rather than just in isolated pilot implementations.

But even with all this, we've only scratched the surface.

If you sensed we're excited about Machine Health, you're right. Never before have we been able to offer a solution with such rapid payback that can be used in virtually any industry with rotating equipment.

The only thing more exciting is when we make it work for you.

We hope this eBook has sparked optimism, excitement, and a resolve to explore in more detail how Machine Health can truly transform your organization and help you start getting the most from your machinery. Take the next step by scheduling an in-person or virtual meeting to explore the particulars of your organization, needs, and targets. We'll develop a customized proposal, timetable, and value map designed to help you successfully articulate to your C-suite why Machine Health is a vital part of a winning digital transformation strategy.



