

# Plant-wide condition monitoring

## Unmatched capabilities to ensure success

### Overview and benefits

A majority of industrial plants today have implemented machinery protection and condition monitoring systems on their most critical rotating and reciprocating assets. However, this asset class accounts for only about 5% of the total



Typical asset population considered "critical"

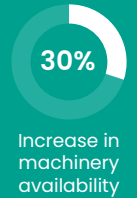
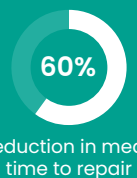
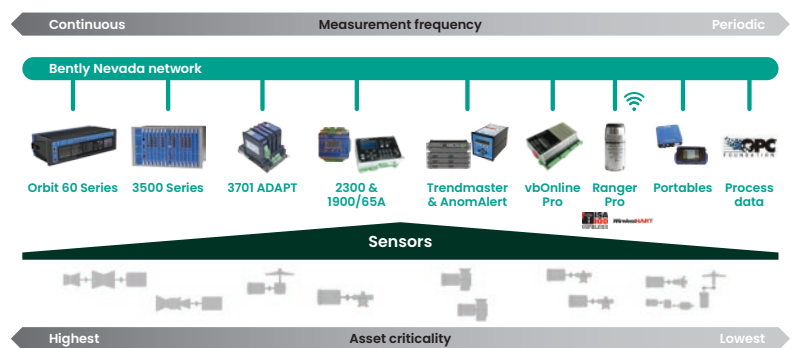
asset population in a typical plant. While an admittedly disproportionate percentage of benefits come from this 5%, and is the logical place to start a program, it is not where a program should end: the other 95% of assets simply cannot be ignored for those operators that are serious about remaining competitive in a global marketplace. Best-in-class companies understand this and have expanded their condition monitoring programs beyond merely their most critical asset populations to the remaining 95% of their assets. As a result, they are experiencing powerful, compelling benefits such as those at right\*.

### Key considerations for success

To be optimally effective both functionally and economically, a plant-wide condition monitoring program cannot be a patchwork of siloed technologies from multiple suppliers. It must instead be a cohesive program where the technologies work together in integrated fashion to address each and every candidate asset via a plant-wide dashboard. It must also consider more than just the technology aspects to encompass the service capabilities and domain expertise of the provider. Enlightened evaluation criteria when selecting a partner for your plant-wide condition monitoring needs will include the following seven key considerations.

#### 1. Breadth of hardware portfolio

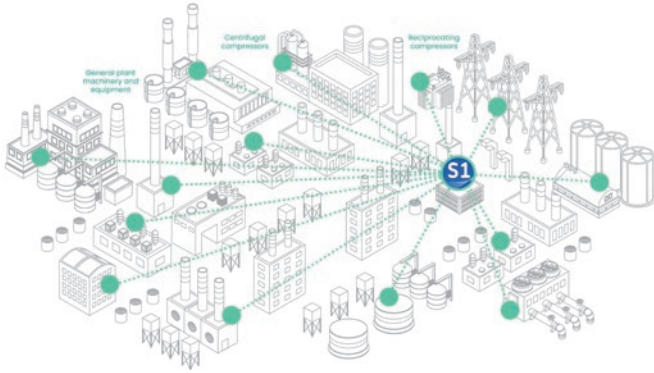
Many providers cover only a portion of the asset criticality spectrum that exists in your plant. In contrast, Bently Nevada covers all of it, offering the broadest portfolio in the industry, including wireless and portables, to ensure every machine type and criticality has a right-sized, best-in-class solution to match the economics of the asset, its failure modes, and its criticality. Our approach means the hardware is integrated by design and eliminates the complications of multiple vendors to manage, multiple dashboards to view, and multiple systems on which your people must be trained.



\* Source: 2018 commissioned study "Digitization of Condition Monitoring" by Frost & Sullivan.

## 2. Unified software ecosystem

Many vendors require different software packages for each type of field device. In contrast, our System 1 software delivers a fully unified environment that does not require you to sacrifice diagnostic capabilities for the sake of integration. Best-in-class spectral tools and resolutions ensure that rolling element bearings can be addressed just as capably as fluid-film bearings and the associated analytic tools and plot types we pioneered for such bearings over the last 60 years.



## 3. Machinery expertise

While many providers have particular niches of machinery (reciprocating compressors, hydro turbines, motors) or component (rolling element bearing) expertise, can they truly say that they have expertise on every asset type in your plant? Bently Nevada can. Our team of more than 160 machinery diagnostic engineers has expertise on every machine type commonly encountered in industrial plants, and we have more than 40 years of experiencing diagnosing and correcting machinery problems. We can even connect to your plant remotely and securely to diagnose problems. And, our Bently HOST™ capabilities allow you to outsource your entire condition monitoring program to us—including the IT infrastructure—when you simply want to purchase the results of condition monitoring, not the technology and sustaining burden.

## 4. Service and support

Will there be competent help when and where you need it? In addition to our machinery diagnostics personnel, more than 340 Bently Nevada field engineers and technical experts are stationed globally to assist customers in their preferred time zone and language with expert product and application knowledge. We also deliver more than 400 training courses per year using on-demand, remote, and traditional classroom formats, ensuring our customers can be as self-sufficient as they desire.

## 5. Approvals and certifications

The right product without the right approvals and certifications is a showstopper. SIL, ATEX, IECEx, RoHS, maritime approvals, and dozens more—all requiring constant vigilance and recertification as they evolve. Bently Nevada offers the most comprehensive palette of approvals and certifications available, ensuring our solutions can be deployed in every industry and country with full compliance.

## 6. Artificial intelligence

Perhaps nowhere can more over-promising and under-delivering be found than in the realm of artificial intelligence and data science. Some go so far as to insist that little to no domain expertise is required and virtually any data set—no matter how devoid of direct condition monitoring measurements—can be used to assess wear, remaining useful life, and fault type/severity. As the first company to deliver a fully automated decision support system nearly 30 years ago, we know what works—and what doesn't. Our System 1 Decision Support environment is unlike anything else in the industry and consists of pre-engineered InsightPaks™ for more than 15 different machines and 30 different malfunctions. Users can also easily configure custom InsightPaks to embed their own knowledge of asset failure mechanisms for automated detection.

## 7. Cybersecurity

When evaluating a supplier, ask yourself whether security in their offerings is an afterthought or a core design criteria. We pioneered technologies such as replication of data from control networks to business networks through data diodes. We were the first condition monitoring provider to pursue and achieve Achilles certification. And, we pioneered the use of inherently secure, hack-proof analog connections to insulate protection systems from condition monitoring systems.

### Unmatched experience

**8 million+**  
installed sensors

**300,000+**  
installed systems

**10,000+**  
installed System 1  
instances

**3 million+**  
parts under System 1  
surveillance

**100+**  
System 1 field  
engineers

**60,000+**  
product service  
jobs completed