

# Science Of Maintenance Will Revolutionize Asset Management

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Over our long history of serving the process industries, we have seen complex, capital-intensive companies optimize design and operations through digital strategies to great benefit.

Optimization has penetrated almost everything – from initial plant and asset design, to the operations management of individual sites and global multi-location systems.

There is one area, however, that continues to elude optimization—asset maintenance.



Maintenance has a stigma as something unpredictable and unmanageable: a necessary evil that can't be accurately planned for or avoided. The accepted wisdom is that maintenance is a cost center with no path to becoming a value creator.

The price is too high to leave maintenance unaddressed. According to a 2015 ARC Advisory Group [report](#), *Proactive Asset Management with IIoT and Analytics*, despite the billions of dollars spent yearly on preventative scheduled maintenance, up to 82% of all failures cannot be avoided using traditional preventive and condition-based monitoring maintenance techniques.

Current economic pressures and ever-changing market conditions are driving C-level executives to find additional areas like maintenance to optimize. With organisations already reaping most of the operational excellence benefits available from optimization in design and operations, they need to take a much harder look at asset maintenance.

Thankfully conditions are right—through the wide adoption of sensors and advances in data science and machine learning via the cloud—to develop asset maintenance. This is the science of maintenance and it has the ability to transform this neglected portion of a business into real and sustainable value.

The science of maintenance leverages historical and real-time operational data, that when fed to algorithms, can model the precursors to failure across all assets and systems.

This enables truly accurate and proactive identification of asset vulnerabilities in near real time. The output is a refined set of recommendations that enable engineers and maintenance professionals to act well ahead of any potential impact on individual assets or larger systems.

Imagine a plant that will no longer be at risk of a random shutdown. Imagine never having to experience losing a year's worth of hard-fought optimization value in just two to three days due to a maintenance emergency.

Imagine arming staff with the intelligence that pinpoints exactly the specific part in an asset or system, that if worked on today, could avoid unnecessary failures during a spike in demand. All this is possible with the science of maintenance.

Through the science of maintenance, we predict where and how a system stress increase will cause a breakdown with months—not just days—of advance notice.

The coordination of all these signals, along with a deeper understanding of how the operation of a plant or asset impacts local and system-wide performance, is driving a significant portion of our Asset Performance Management ([APM](#)) offering.

Through APM, assets can be viewed through the same operational excellence lens as design and operations—delivering value through increased production and reduced costs.

The technologies needed to underpin the science of maintenance are mature and reliable. There is also a growing comfort with these technologies and the engineers who will drive this new area of optimization.

The science of maintenance is at the forefront of how the process and other complex, capital-intensive industries can find new value in their assets. The time is now to make a real impact on costs and profitability.

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