



GUIDE

Why a **Computerized Maintenance Management System (CMMS)** is essential for Lean and Six Sigma maintenance strategies

The overall objective of maintenance managers is to safeguard the lifeblood of the organization – namely, the vital machines that are used every day. Through ensuring equipment effectiveness, you make sure that quality products get out of the door on time and that each asset runs smoothly. Many manufacturers are switching to Lean Manufacturing or Six Sigma, if not both, to eliminate errors and to get the most out of their workday. Lean and Six Sigma complement the goals of maintenance managers and help them achieve their objectives with greater efficiency.

If you're thinking about introducing Lean or Six Sigma into your workplace, you'll be able to reap the benefits that increased efficiency and continuous improvement can provide. However, change management is a key component to get everyone on board. At times, the idea of introducing a new procedure can be met with resistance and even hostility. The key to properly bringing Lean Manufacturing or Six Sigma into your workplace is to make sure that you have the right support through a CMMS.

Lean and Six Sigma: The Disciplines

Both Lean and Six Sigma aim to achieve the greatest efficiency by eliminating defects through quality control. Each has an emphasis on continuous improvement, making them highly popular processes with a large adoption rate within manufacturing. These disciplines are so effective that the list of companies that use them include some of the highest earning companies in the world. From clothing to construction to the military, these methodologies are so prominent and effective that they've become prevalent in industries outside of manufacturing, as well. Let's take a look at what each of these processes entail.

Lean manufacturing

Lean manufacturing provides tools to define and eliminate waste throughout the manufacturing process in order to increase efficiency and ultimately profit. While it initially started as early as the 1450s in Venice, the first person to truly integrate the process was Henry Ford.¹ In the late 1980s, Toyota perfected the process and gave us the Lean techniques we know today.¹

Toyota improved on the original process by adding evenness of work flow to the process, helping expose inefficiencies in production that allow companies to redesign manufacturing processes for maximum profit. Quality improves as production time and cost are reduced. There is an emphasis on not only continuously improving the process but also on measuring data to gain actionable insight.

Six Sigma

Put simply, Six Sigma is about continuous improvement. The word "Sigma" itself comes from statistics and refers to how far something is from perfection. Created by Bill Smith while working at Motorola, it focuses on the fundamentals of an operation and looks for a better way to perform the tasks.² Every part of the process is about improving the products that a company offers to its customers by eliminating defects or anything that impairs product quality.

The philosophy of Six Sigma emphasizes personal responsibility as everyone involved strives to achieve perfection and improve efficiency. Furthermore, it offers a clear goal for companies to achieve measurable and quantifiable financial returns. One of the central tenants of Six Sigma is the DMAIC process, which stands for “Define, Measure, Analyze, Improve and Control,” which gives you transparency into what is working and how to improve.

Barriers to adoption

A common feeling shared among employees when any new process is introduced is that of redundancy – i.e., whatever process you bring on is just going to be as inefficient as the one before.³ These skeptical points of view stem from poor application of these methodologies. For every great outcome, there’s an attempt at integrating Lean or Six Sigma that isn’t properly supported that results in frustration, poor quality and unhappy customers.⁴

However, this should not discourage you from adopting these highly effective processes and reaping the benefits. There is a way to not only pitch Lean and Six Sigma to your employees, but to also make it easy for them to integrate it into their daily work.

By introducing the new process by focusing on the positives and benefits (who doesn’t want to make their job easier?), you’ll be successful with introducing Six Sigma or Lean into your organization. Once you begin the process, it’s key to keep focus on perfecting it and tailoring it to your daily work, and the best way to do this is through using it daily with a technologically savvy platform.



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CMMS and your methodology of choice

One way to get everyone to embrace the new process is by making it easy from the beginning. So to make the transition as smooth as possible for the maintenance team and ensure continued usage, provide a tool to support it – more specifically, a CMMS.

Six Sigma

The right CMMS can provide easy ways for maintenance managers to easily track their progress and how efficient they are, which makes it the perfect complement to the DMAIC process. Here are the key ways that CMMS can help each step of the DMAIC process:

DEFINE	In the first step, DMAIC calls for “defining,” which includes the definition of the most essential maintenance and safety data to track. Once the vital parameters to track are defined, a clear path is set. Some CMMS providers will offer an implementation and consultation service to guide manufacturers in this process. Often, these consultants can advise which parameters will provide the most valuable feedback.
MEASURE	Once parameters are set and defined, it’s important to have a tool in place that will measure them accurately and without excessive manual effort. CMMS platforms, especially with mobile functionality, make measuring simple for the maintenance technicians and managers. There are a host of key parameters that can be measured such as how often machines are maintained, how often they break down, and which machines are using up most of the budget
ANALYZE	Once measured, this next step in the process kicks in. One of the industry standards to focus on analyzing is the Overall Equipment Effectiveness, which measures the health of your equipment and gauges your maintenance strategy. CMMS systems can identify trends from the data that was measured in simple reports to show key outliers and areas for improvement. Manufacturers can also compare themselves to others in the same industry, i.e. use benchmarking, by tracking and comparing the same key values to get a true sense of how they are doing.
IMPROVE	Once spotted, key areas of concern can be addressed. Sometimes, when one machine consistently fails, it turns out that buying a new piece of equipment is more cost effective than allow it to keep guzzling the current maintenance budget. Other times, equipment may just need a more frequent preventative maintenance schedule. In contrast, other pieces of equipment may hardly ever have an issue and need less focus. In any case, this is the stage where you can pinpoint problem areas to increase cost effectiveness and better allocate your team’s manpower.
CONTROL	Once you have improved your processes, it’s vital that you control and sustain them. One of the best ways to sustain positive change is to continue to measure and track with a CMMS to make sure that the maintenance strategy stays on tracks.

Another important aspect to keep in mind is that the team needs to embrace the positive changes and to continue using Six Sigma. A CMMS can make it easier by giving you the power to track all the positive changes in your organization and the visibility to easily access and create reports using the data.

Lean manufacturing and CMMS

Like its name suggests, Lean Manufacturing eliminates waste – and a CMMS can help with just that. By looking for trouble areas that arise in maintenance, workforce scheduling, inventory, work order management and preventive maintenance, a CMMS can help you focus on the tasks that matter and trim the fat that can slow you down.

When using a CMMS, tasks such as preventive maintenance becomes more efficient and equipment uptime increases. The right platform will give you the power to make better decisions when it comes to your budget, as well, including:

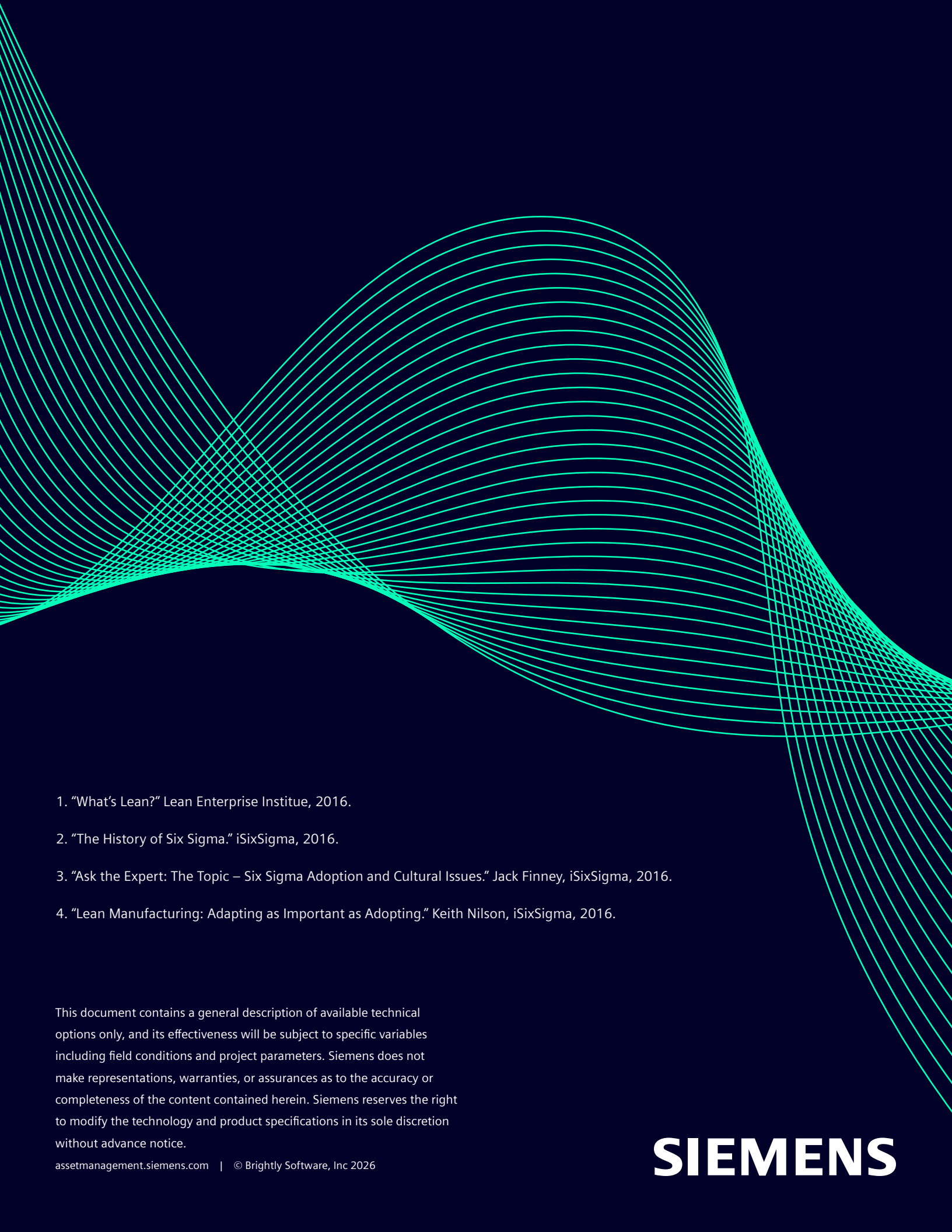
- **Trends in over maintaining** become easy to spot
- Workforce **scheduling seen at a glance** with a calendar view
- **Spare parts inventory** management so you know you have the right parts on hand at the right time and stored in the proper places

Additionally, CMMS ensure that work orders are filed in a central system, allowing all technicians access from any desktop or mobile device. This mobility means less time looking for work orders, more accurate data, and increased organization.

CMMS: **Ally to your workforce**

Although it may take some time to adjust, the best way to ensure a successful transition into either Lean Manufacturing or Six Sigma is through a team effort. A CMMS platform that is easy to use and delivers actionable information is a powerful ally to your methodology of choice. When you're looking for the right tool for the job, be sure you find one that has transparency for all users and powerful software that can give you data and insights. By pairing Lean Manufacturing or Six Sigma with a CMMS, you'll start to see better time management, be empowered to plan for the future, and have a stronger workforce.

“ Lean Manufacturing eliminates waste – and a CMMS can help with just that. ”

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1. "What's Lean?" Lean Enterprise Institute, 2016.
 2. "The History of Six Sigma." iSixSigma, 2016.
 3. "Ask the Expert: The Topic – Six Sigma Adoption and Cultural Issues." Jack Finney, iSixSigma, 2016.
 4. "Lean Manufacturing: Adapting as Important as Adopting." Keith Nilson, iSixSigma, 2016.

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