What makes a well-oiled maintenance machine?

Our research shines new light on the factors that underpin a strong maintenance function—along with those that don't, and the areas where many companies underperform.

by Patricia Bivol, Tim Close and Patrizia Turtur

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In many production environments, maintenance remains something of a dark art. Mangers understand the vital importance of maintenance activities when production is at stake—they've seen maintenance teams step in to save the day by bringing reluctant machines back to life or solving challenging quality issues with their special knowhow.

They also know that real magic lies in maintenance processes that prevent breakdowns in the first place. But the formula that that yields higher reliability—and less firefighting—can be frustratingly elusive. The relationship between maintenance investment and asset reliability is rarely clear. Maintenance teams have a seemingly endless appetite for time and resources to carry out their work, but when things go wrong they are quick to blame an asset's age, or a lack of investment in it.

Since 2012, we've been researching the relationship between the practices adopted by maintenance functions and the results they achieve. To date, more than 400 people have participated in this research through our online Benchmarking tool for Asset Productivity[1]. Together they represent 227 companies from 25 different industrial sectors in 22 countries. The survey takes a comprehensive view of the maintenance process, looking at measures of efficiency, effectiveness, and the underlying enablers of performance.

In previous articles[2] we've discussed what this work has revealed about the maintenance practices that drive high performance. Those practices include high quality notifications when work is required; robust gatekeeping; detailed and accurate plans, clear, effective scheduling; a strong performance management system; and regular review of maintenance routines to weed out unnecessary activities.

Now we want to examine the factors that support those practices, based on some of our top findings from the survey.

1. Structural factors don't affect maintenance performance

Are some industries better at maintenance than others? Does the size of your organization matter, its wealth, or its location in the world? The answer to these questions seems to be "no." We found no strong link between structural factors such as these and maintenance outcomes.

[1] https://operations-extranet.mckinsey.com/content/focus/Benchmarking+tools/view/2012_maintenance_benchmarking_tool

[2] https://operations-extranet.mckinsey.com/content/topic/Maintenance+and+reliability/view/20131112_maintenance_practices_drive_site_performance

Intuitively, this finding makes sense. The key performance drivers we've previously identified don't depend on scale. A company's ability to plan and schedule its maintenance, for example, requires a well-defined process, employees who follow that process, and the right mechanisms to review performance. Those requirements are identical for a large company or a small one.

2. Maintenance strategy matters

So what does make the difference? In reviewing correlations between various sets of responses, we found that the strength of an organization's maintenance strategy—and the resulting equipment maintenance plans—were the best predictors of high performance in other areas. Generally, an organization that scored highly in questions related to strategy was highly likely to score highly across the board.

We found particularly strong correlations between strategy and three other areas of maintenance performance:

Planning. How thorough are your maintenance plans? How do you measure compliance with those plans? Do you prepare kits of tools and parts for regular maintenance tasks?

Operating procedures. How detailed are your maintenance task instructions? Are standards established for maintenance performance? Are equipment specifications and other documents readily available to maintainers?

Continuous improvement. How do you review and improve your maintenance programme? Do you prioritize continuous improvement activities? What analysis tools do you use to investigate equipment issues? How well do you manage the implementation of continuous improvement actions?

These findings shouldn't be a surprise. A well-defined maintenance strategy doesn't automatically make a company good at planning, writing robust maintenance procedures, or diving continuous improvement—but it does provide a solid platform that helps them get those things right.

3. The strongest performers are the most efficient

When we looked at the correlations between respondents' scores in different parts of the survey and their overall maintenance performance, one area stood out: efficiency. The more efficient a company's maintenance processes, the higher its overall score was likely to be. That's probably because efficiency is an outcome of good performance in other areas. To be efficient, you need good knowledge of your equipment, well managed teams, and effective maintenance routines.

4. Review and improvement have room for improvement

As we have discussed elsewhere[3], robust processes to review and then continuously improve maintenance practices are powerful way to drive better performance. Yet respondents to our survey have tended to score poorly on questions related to their review and continuous

[3] https://operations-extranet.mckinsey.com/content/function/Manufacturing/view/20130409_perf_management_in_asset_productivity

improvement capabilities, a finding that holds regardless of their sector or company type.

Good practices in these areas are no secret. Cascading key performance indicators (KPIs) help link maintenance processes back to organizational goals. Visual management tools mean teams and managers can easily see how well things are going to plan. Regular review meetings and performance dialogues at every level of the organization ensure it can measure its progress against those cascaded KPIs, and take prompt corrective action if required. In our experience, the main reason companies don't implement or sustain these activities is because their leadership doesn't convince them to do so.

Fixing that issue should be a priority of maintenance leaders. They can do it by communicating a compelling story about the need for higher performance, and by acting as role models, with regular and ongoing participation in review and improvement activities.

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How does your organization stack up against these findings? Find out by participating in our survey yourself. Click here[4] to get started■

*About the authors: **Patricia Bivol** and **Patrizia Turtur** are consultants in McKinsey's London office, where **Tim Close** is a senior expert.*

[4] https://operations-extranet.mckinsey.com/content/focus/Benchmarking+tools/view/2012_maintenance_benchmarking_tool