

**MANAGEMENT
BRIEFING**

Drive Maximum Performance from Equipment, Facilities & Personnel



This briefing demonstrates how companies can make significant improvements to processes and profitability without adding resources or making unnecessary capital investments in equipment, facilities and personnel.

Executive Summary

Companies strive toward growth and continuous improvement, but often struggle to identify the right path to follow. Many organizations fall into the trap of thinking that, to increase capacity, they must invest in newer machinery, expand into larger facilities, or hire more workers.

In this briefing, we look at the topic of asset utilization and demonstrate how, with the right approach to asset performance management, companies can make significant improvements to processes and their bottom line and potentially avoid adding additional resources or making unnecessary capital investments in additional equipment and facilities.

Defining “Asset Management”

Although asset management can be defined in several different ways, it can most usefully be thought of as everything an organization has in its portfolio. For all businesses, managing these resources to maximize opportunities inevitably leads to improved performance on the bottom line.

All companies should strive toward optimizing their assets—getting the greatest possible benefits from their existing resources. This involves carefully appraising assets to identify those that are capacity-constrained or that significantly impact your customers or costs..

Current Approaches to Asset Management

There isn't a right and wrong way to manage assets—there are many legitimate approaches—but there is a level of understanding that's sometimes missing from certain industries where the principles of asset management have historically not been applied or understood.

Many common approaches to asset management are characterized by a general inconsistency in philosophy and execution. At the most extreme end of the spectrum, many companies (usually those that are less capitalintensive) don't approach the topic at all. For many, they believe that the answer to capacity constraints is simply to add production lines or build new plants.

The first step many companies take is to measure the utilization and the uptime of their equipment. Although beneficial, this approach misses the hidden activities that impact performance such as minor stops and running at a slower rate than planned. Business leaders then tend to think they should buy new equipment or expand their physical footprint to try and meet growth objectives.

As a primary solution, this falls short; these businesses have made the classic mistake of not considering how to maximize performance from the assets they already have. Optimizing assets already in place is a cheaper and usually more effective approach when compared to trying to increase the number of machines, the size of the workspace, or even the number of employees working for a company.

A typical example of this is when companies are growing—they often feel they have to purchase additional equipment or build additional facilities. In fact, this substantial outlay can often be avoided through a careful process of looking at what the company already has and using it better. In this example, this may mean making better use of existing workspace, speeding up change-overs, adopting new technologies, or updating existing machinery.

Being over-dependent on the idea of capital expansion, be it new equipment or new facilities, is a common pitfall that companies often fall into. This, combined with a mindset of “We’ve always done it this way”—following a path they’ve always followed whenever they have needed to expand their capability and capacity in the past—seriously undermines the effectiveness of an asset management program.

Companies may be quick to choose something shiny and new as a solution to a problem, when in reality utilizing the existing footprint will more effectively satisfy customers and have a bigger impact on the bottom line by avoiding a major capital expense.

Instead of doing things how they’ve always been done, an effective asset management process needs reliable and flexible tools. One of the most effective tools for companies in any industry going through an asset management review is known as Overall Equipment Effectiveness (OEE).

Overall Equipment Effectiveness

OEE is a tool used to identify and eliminate leading causes of downtime and production losses in an organization. This metric is all-encompassing. It collects large amounts of valid and actionable data, putting together a vivid, and highly valuable picture of how a company’s assets are being managed.

OEE is presented as a balanced scorecard, made up of three measurements:

- **Availability** encompasses both schedule and significant downtime in equipment—how available an asset is to run a production process.
- **Performance** is how well the asset is performing relative to its rated speed or output.
- **Quality** is both scrap and yield losses—raw material inputs versus finished good outputs—as well as rework.

These three measurements are linked, on multiple levels. For instance, at a high level, if we focus exclusively on performance and run a machine at full capacity to increase production, we might sacrifice quality. Likewise, if we solely focus on quality, we might slow down the machine to minimize scrap but that will adversely impact performance.

At a more granular level, by measuring only one aspect of a measurement, such as scrap rates instead of “quality” in general, we may miss opportunities for improvement. For instance, the cost of reducing rework through more labor might be much higher than reducing scrap rates through increased automation. Both measures reflect different aspects of quality, but both need to be evaluated together.

By focusing on only one aspect, it’s impossible to get a full picture of the optimal asset performance levels. That’s why the right approach is to consider these three measurements as a balanced scorecard, and to optimize the three measurements as a group.

The Value of Measuring OEE

OEE can be used as a benchmarking figure, especially to compare your business to competitors or within your global manufacturing footprint. It provides a snapshot of how well your company is managing its assets right now—and identifies where potential opportunities for improvement could be.

Through investigation and understanding where opportunities for improvement are in your processes, you can set achievable and realistic goals for your organization. If you're at 60 percent OEE, you could set a target for 12 months from now to be at 70 percent.

Every organization has potentially boundless opportunities to improve the discrete factors that go into the OEE calculation. So how do you know where to start?

When taking OEE measurements, it's essential to be at the "shop floor" level, at the point where the activity is happening. For example, if you're looking at food production in a processing plant, don't sit in the conference room. Instead, get the team out on the manufacturing floor where the food is being processed and packaged. We call that the "point of impact".

At the point of impact, it's possible to measure how many packages a machine can produce in a minute. Set a benchmark and then measure all the machines against that benchmark.

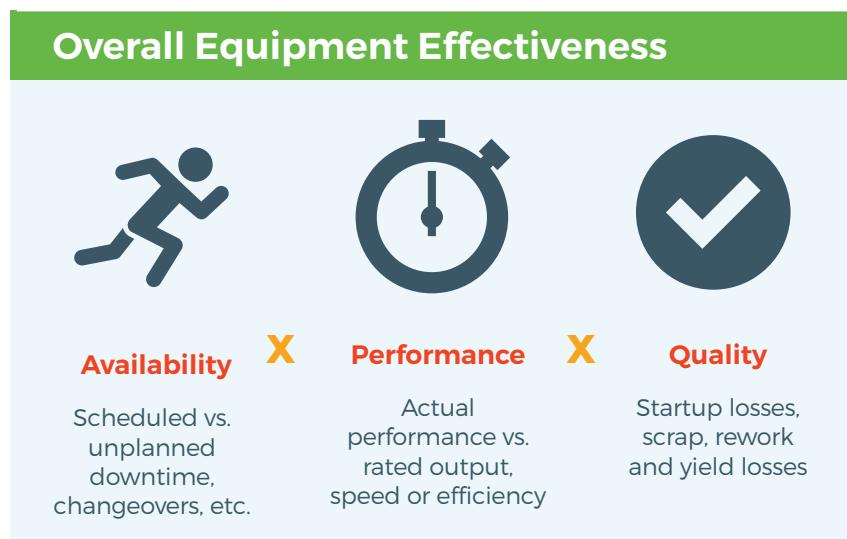
For example, if you measure that, at its optimum, a machine should pack 220 packages a minute, and another machine is running at 215, then you know the second machine is running at 98 percent from a performance perspective.

From a quality perspective, you might measure 1 defective product per 100 produced per hour (99 percent). Availability might measure that your machine is running 95 percent of the time when planned and unplanned downtime is considered. In this example, OEE is 92 ($0.98 \times 0.99 \times 0.95$). (See Fig. 1 below).

It helps to think about the EBITDA impact of a 1 percent improvement in OEE or, more precisely, in availability, performance or quality.

By framing process improvement decisions in financial terms, implementing changes that might ordinarily be considered "costs" transform into "investments" with a demonstrable positive impact on a company's earnings. This type of analysis helps pinpoint where small investments can lead to large returns, thus indicating good places to start. It also identifies where process changes won't have a significant impact, suggesting they be de-prioritized.

FIGURE 1



Find Problems—and Fix Them

Asset management is about doing more with what you have. And with OEE you have a powerful tool in hand that can help you identify areas for improvement in your organization. What other strategies are important?

1. CHALLENGE THE STATUS QUO

Many companies understand what can be termed “the base level of improvement.” Once a measurement is taken, they see the benefit of trying to improve the number. For instance, perhaps you currently produce two products on the same assembly line. You can only produce 50 of each product per hour because a set of tooling needs to be swapped out every time you switch products. You set a goal to make the changeover faster, so you can double production to 100 products per hour.

But rather than reflexively ask, “How do I run that process faster?” (or better, or cheaper) often the better question to ask first is, “Should I use that process in the first place?” In this example, perhaps the better solution is to produce the two products on two parallel lines, thereby eliminating the need to re-tool in the first place.

2. ENGAGE YOUR OPERATORS

One of the most important—and overlooked—components to an effective asset management initiative is involving equipment operators. Most equipment operators are at their posts all day, using the machines and applying the procedures you develop. They generally have a rich knowledge of how the equipment functions today, and can be a great source of ideas of what could be readily improved. Moreover, you need their support and buy-in to improve processes involving the equipment they operate.

3. PICK YOUR BATTLES

Realize that change cannot happen all at once. There simply aren't the resources, the time, or the energy to fix everything that should or could be improved, so it's important that you are strategic in where you place your focus.

It's key to avoid falling into a “popcorn process improvement” approach—some improvements here, some improvements there, but no real concerted effort in one key area.

This approach often stems from having a particular comfort level or expertise in one aspect of how the company operates and not wanting to stray from that zone.

A more effective approach is to step back and look at the overall value stream so you can decide where improvements are most needed—how you can get the biggest bang for your buck.

Partner with TBM

Cutting costs is key—whether your growth is boosting or bleeding your profits, the right operations strategy will gain you greater flexibility, greater productivity, and greater profits. There's no reason to go it alone as you navigate your way toward operational excellence.

Working with a third party consulting partner enables you to achieve greater insight into your Operations processes through outside eyes. TBM Consulting is a global operations consulting firm that enables manufacturing and distribution companies to improve profitability, increase cash flow, execute effectively, and accelerate value creation.

Our team of highly-experienced consultants will roll up their sleeves and work directly with you to achieve your highest operational potential through a customized plan that fits your exact needs—giving you fast, measurable results. If you want to do it right and make it last, consider TBM.

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