

Top 12 Myths about OEE



Thousands of pages have been written about **OEE (Overall Equipment Effectiveness)**. Some of it is **clear and useful**; much of it is **not**.

Personally, we're huge advocates of OEE. However, we've noticed a recurring theme in many of the web sites and white papers we've reviewed, not to mention conversations we've had with prospective customers of our own OEE-related software, AspectPL. Often the writer or speaker will take an extreme position – OEE is either vastly overrated or it's a silver bullet.

In our experience, it's neither of those things. And attempts to justify the first position only obscure OEE's very real benefits, while attempts to justify the second obscure its equally real limitations.

Consequently, those who are considering investing in OEE (no small decision) can find it difficult to evaluate it dispassionately. Will it make a meaningful contribution to my business? To what extent? What exactly will it assist with, and what will it make no difference to? Will I need to run my business or my factory differently and, if so, in what ways?

We wrote this white paper to help answer those kinds of questions, and to enable you to more easily judge OEE's potential value to your business. We've assumed you already have the basic concepts of OEE under control – what the acronym stands for, the essential principles and so on. So this paper should not be read as an introduction to OEE. Its intention is to help cut through some of most common misconceptions perpetrated by both its advocates and detractors, and provide some means of sorting the useful information you've read from the nonsense.

Finally, a word about our own biases. As stated earlier, we are advocates of OEE. In addition, our particular specialisation is the development and sale of software such as AspectPL, which helps plastics manufacturers to unlock the hidden capacity in their factories. We've striven to provide well informed, unbiased opinions in what follows – but they are opinions nonetheless. They're not the gospel truth, but if they shed some light for you on this complex area, we will have achieved our aim.

MYTH #12 Our machines are fairly old. OEE is not a good measure for us.

REALITY

OEE is not an absolute measure. It measures how your equipment/factory is performing compared to its actual potential. So it's entirely possible that a company operating efficiently with old machines could have a higher OEE figure than one operating inefficiently with brand new machines.

The point of OEE is not to measure your factory's absolute performance against that of others.

The point is to measure **how effectively** you are using the **resources at your disposal**, and to **help identify** where the greatest **room for improvement lies**.

For that reason, OEE is for everyone – regardless of the age or condition of their machines.

MYTH #11 I've seen production lines with live OEE displays.

REALITY

Although touted as OEE displays, the things you've seen are not.

OEE is a measure of **availability, performance** and **quality** over time.

So-called OEE displays only provide a reading of what's happening at this moment in time. They're little different from the speedometer or heat gauge in a car – useful measures in the moment, but no use for analysing ongoing performance.

AspectPL measures OEE by a number of parameters: job, shift, day, week, month, year – or any period of time the user chooses for any machine or tool.

MYTH #10

If our OEE figure is high, then we can be sure our Operation effectiveness is also high and things are in good shape.

REALITY

No you can't be sure. Consider this scenario:

You have 20 machines in your factory, but only 10 have been fully in operation over the last six months. Those 10 machines are operating at an impressive OEE – for the sake of argument, let's say 85%.

Because OEE only measures machines that are in operation, (hence Overall Equipment Effectiveness), your total OEE is also 85%. Clearly, however, you have a problem. You have 50% capacity sitting idle for a significant amount of time.

Put another way, your operational effectiveness, or factory utilization, is low. As is your return on asset investment. And that's a serious issue for your business.

When this is understood it is clear that **OEE is not the only measure that needs to be considered** when reviewing the **performance of your business.**

Two other important metrics to consider are Gross Utilization and Net Utilization. Gross Utilization is a measure of the time making good and bad output in relation to the total time available while Net utilization is a measure of the time taken to produce good output only in relation to the total time.

Now the question becomes: Why are those machines idle? It may simply be a lack of customer orders. However, a more frequent cause is scheduling issues – it's just too hard to keep sufficiently on top of the production schedule to allow every machine to stay busy all the time.

One feature that makes AspectPL so powerful is its sophisticated scheduler and calendar, which overcome these problems. Without these tools – which most OEE applications are missing – your OEE strategy may still leave you running ineffectively. With them you have a major competitive advantage. What's more, AspectPL not only reports on OEE but reports also on Net and Gross Utilization

MYTH #9 Everyone knows what OEE is.

REALITY

While almost everyone in manufacturing has heard of OEE, many still only have a vague notion of what it actually is. If you're one of those people, congratulations for taking the steps to find out more.

In any case, because there is no single, universally agreed-upon definition of OEE (although the general principles are undisputed), it's fair to say that no one really knows what it is. We all just have our own opinions of what it is, including us.

MYTH #8 OEE is complex and theoretical.

REALITY

The principles behind OEE could hardly be more simple:

to maximize your OEE keep machine **downtime to a minimum**, **manufacturing speed at specification**, and the percentage of **rejected products to a minimum**.

What's more, putting these principles into practice is also relatively straightforward if you have the appropriate systems. Companies who have implemented effective OEE systems commonly report a 10-15% increase in capacity without having to spend a cent on anything but the software.

MYTH #7 Our company already does OEE manually.

REALITY No it doesn't.

Accurate data is essential for OEE information to be relevant.

If you have someone wandering your factory floor with a clipboard, you may have data, but you can be absolutely certain that not only is it inaccurate, it's also incomplete and wildly out of date by the time you get to use it.

MYTH #6 Our OEE is 90%.

REALITY You can be 100% certain that your 90% figure is wrong. World's best practice is 85% OEE – and that's from companies who have implemented stringent improvement programmes over many years using the best available software and management practices.

OEE is often calculated incorrectly, producing false off-the-chart results.

The most common cause of very high OEE is the overstatement of machinery performance;

for example, a machine is said to be performing at 120% of capacity, even though no machine can perform at more than 100%. Multiply that 120% by 85% and 90%, and you've got a great OEE number. Except it's nonsense.

This approach may leave you feeling good, but at the cost of disguising availability and quality and that means you're definitely missing simple opportunities to improve productivity.

If a machine or production line is performing at above 100%, your specification is incorrect. Adjust it downwards to a realistic level and reap the rewards.

MYTH #5 The purpose of OEE is to get our factory operating at maximum efficiency and effectiveness.

REALITY

The purpose of OEE is to lower the cost of manufacture and increase margins and profitability.

OEE is a **business tool**, not a **manufacturing tool**.

If you're a CEO, CFO, MD or similar and have left your Production Manager to become the company's OEE expert, you're missing the point. We recommend you get yourself up to speed before your competition grinds you into the dust.

MYTH #4 We don't need OEE. We do variance reports.

REALITY

And Lewis Hamilton doesn't need a windscreen and dashboard because he has a rear vision mirror. There are two major differences between variance reports and OEE:

- [1] Variance reports tell you what happened in the past but provide no useful information on why there was a variance. OEE tells you what happened to cause the variance to occur. If action is taken based on the OEE information any variances will tend towards zero over time.
- [2] Variance reports only provide averages, not insights. For example, a variance report may tell you that over the duration of a given job, a particular machine produced widgets at an average of x per minute. What it doesn't tell you (and what OEE does) is how that average came to be: was the machine in operation during the whole job, or was there some downtime (and how much?). How long did the tool change take? Did the machine produce widgets faster at some points and slower at others, and if so, why? How did performance impact on quality? All these factors allow you to see where improvements could be made that will make a real difference to results and to your bottom line. Variance reports provide none of those insights, making it a feeble tool compared with OEE.

MYTH #3 As a Production Manager, automated OEE will do me out of a job.

REALITY

Production Managers are directly affected by the implementation of an automated OEE application like AspectPL – more so than anyone else in a manufacturing operation – so we understand why you might feel uneasy about it. However, in our experience, once OEE is implemented Production Managers who were wary of it become rapid converts. The reason is twofold.

OEE is **easy to use**

If you can use a computer, you can use OEE software. The information that OEE applications display on a computer screen is information that you're already very familiar with. The difference is, instead of having to manually check each machine for that information, or do calculations on a piece of paper, or figure out the best way to schedule x jobs across x machines in the next x weeks, now most of that work is done for you automatically. Training users in AspectPL typically takes less than a day. We also provide ongoing phone support.

OEE allows you to **make a greater difference**

In a non-OEE environment, the Production Manager spends a lot of time “doing” rather than thinking (planning and reworking schedules, checking machines or reports, and so on). What's more, the thinking that does get done is based on incomplete, historical data. There's hardly a Production Manager in a non-OEE factory who doesn't know “in his bones” that there's significant additional capacity out there on the factory floor – if only it could be uncovered.

Measuring OEE removes the guesswork about how to unlock hidden capacity.

The best way to illustrate this is with a story. Before we installed AspectPL in a client's factory, we asked the CEO, Operations Manager and Production Manager to each predict the single greatest factor in machine downtime. The CEO said setups, the Operations Manager said electrical, and the Production Manager thought it was waiting for setters. Now, who do you think was right? (*See page 10 for the answer.)

MYTH #2 OEE is only for big companies who can afford the expensive software packages required.

REALITY

There certainly are some very expensive software packages for implementing OEE. In our view, the expensive packages are often bloated – they come embedded with other ERP-type features that you may or may not want, or they measure things that are completely unnecessary. Either way, you pay. We developed AspectPL to provide a world class OEE application at a price that's within reach of most manufacturers.

MYTH #1 OEE makes a massive difference to companies who employ it.

REALITY

Measuring OEE by itself makes no difference at all. It merely allows you to see things that you otherwise wouldn't be able to see.

What makes the difference is **your willingness to act on the information that supports the OEE calculation** and that may mean significant changes in the way you do some things.

In our experience, some companies are up for that and some aren't. For companies who persevere with understanding the information and implement activities to drive OEE up towards worlds best practice the rewards in terms of unlocking the hidden capacity of the factory are enormous.

Answer to Myth #3

Are you ready? AspectPL showed that they were all wrong.

In fact, the most significant downtime was caused by weekend shut down and startups. By focusing their efforts on improving this measure, the company lifted OEE straight away.

The Operations Manager now spearheads the company's ongoing improvement drive and can't imagine life without AspectPL.

