

CALCULATING AND MAKING OEE WORK

Overall Equipment Effectiveness (OEE) can be a powerful metric to help improve the performance of your machines and industrial assets.

The simplest way to calculate OEE is as the ratio of Fully Productive Time to Planned Production Time

Planned Production Time – Total time that equipment is expected to produce. Calculated by subtracting Schedule Loss from All Time. Benchmark that OEE is measured against.

Fully Productive Time - is another way of saying manufacturing only Good Parts as fast as possible (Ideal Cycle Time) with no Stop Time. Hence the calculation is:

$$\text{OEE} = (\text{Good Count} \times \text{Ideal Cycle Time}) / \text{Planned Production Time}$$

Although this is an entirely valid calculation of OEE, it does not provide information about the three loss-related factors: Availability, Performance, and Quality, which must also be factored into the calculation.

A world-class benchmark or measurement of original equipment efficiency (OEE) is 85%. Based on extensive work with Eastern Cape firms the local recorded achievement is 74.3% - which means the local supply chain can extract significant further gains from TPM implementation.

Over the past several years we have assisted suppliers achieve OEE improvement between 6.54% and 9% annually.

Improving OEE can get complicated when manufacturers gather too much or the wrong kind of data. Then it may become difficult to boost OEE performance across plants and production operations

Here however are 10 benefits:

1) Get the best performance from the machinery

One of the biggest benefits of using an OEE system is that the performance of machines increases rapidly from the time of implementation.

2) Return on Investment (ROI)

Companies make large investments in machinery and need to achieve the maximum return on their investment. As an operator you are able to prove the financial value of your investments with measurable data provided by the overall equipment effectiveness (OEE) and other hard metrics. If users can produce 10 percent more product in the same amount of time using the same equipment, they've made an appreciable and measurable contribution to the company's bottom line.

3) OEE works and speaks for everyone

Information provided is targeted to every level of the production process: from the shop floor team right up to the top level management. OEE information is insightful and triggers teams to

improvement action. For shop level teams it fosters group problem solving and healthy competition among teams. It also enables top level management to focus on areas that will yield the greatest returns.

4) Helps increase competitiveness

It is essential to reduce production losses and achieve greater competitiveness. For example, if a production line is capable of making 100 pieces per hour, but is only producing 60, it is not efficient enough. With the hard OEE data in hand, operators are able to identify constraints in the production line.

5) Insights into the unknown of your production

Only what is measured can be managed and improved. The live data visualization of the equipment status provides the knowledge to reduce unplanned downtime and speed up planned stops. Analysis of the correlation between performance and performance loss (e.g. small stops and slow cycles) reveals potentials for maintenance improvements leading to lower costs, reduced material consumption and greater equipment availability.

6) Visualize performance in simple terms

OEE visualizes performance by taking the most recurrent and important sources of productivity losses, assigning them into three important categories of availability, performance and quality and then filtering them into a single metric that shows you where you currently stand and how to improve.

7) Discover 'The Hidden Factory'

Usually, real process efficiency is much lower than is assumed. Uncovering this fact, called the 'The hidden Factory', is the first step to improving industrial productivity.

8) Reduce machinery repair costs

Knowing the actual performance of the machinery goes hand-in-hand with knowing whether or not the machine is working properly, or whether there are issues that may lead to the need for the future repair. Having a OEE-system that is able to anticipate these events (analyzing unexpected shutdowns, reduced speeds etc.) represents a major saving in both preventive maintenance of machinery, as well as in the high costs associated with the failure of the machine itself.

9) Great scalability

You can start using an OEE-system on a single machine or process and continue to expand its implementation until it is employed across multiple production plants. This scalability means it becomes a very versatile system, one that can be adapted to any company, regardless of its size.

10) On-site support

Finding an experienced partner to assist you implement TPM on the shopfloor, train your TPM facilitators and establish a system that can monitor your machines and make sense of the data, is available and will optimise TPM in your business.

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