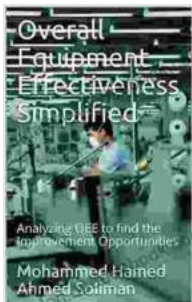


# Analyzing OEE to Find the Improvement Opportunities

Overall Equipment Effectiveness (OEE) is a metric used in manufacturing to measure how effectively a machine or production line is performing. It is calculated as a percentage and takes into account three key factors: availability, performance, and quality. By analyzing OEE, manufacturers can identify areas for improvement and make changes to their processes to increase productivity and reduce waste.

OEE is calculated using the following formula:

$$\text{OEE} = \text{Availability} \times \text{Performance} \times \text{Quality}$$



## Overall Equipment Effectiveness Simplified: Analyzing OEE to find the Improvement Opportunities

by Mohammed Hamed Ahmed Soliman

★★★★★ 5 out of 5

Language : English  
File size : 3824 KB  
Text-to-Speech : Enabled  
Enhanced typesetting : Enabled  
Word Wise : Enabled  
Print length : 39 pages  
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Screen Reader : Supported

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- **Availability** is the percentage of time that the machine or production line is running and available to produce. It is calculated as:

Availability = (Operating time / Planned production time) x 100

- **Performance** is the percentage of time that the machine or production line is running at its ideal speed. It is calculated as:

Performance = (Actual production output / Ideal production output) x 100

- **Quality** is the percentage of units produced that meet the required quality standards. It is calculated as:

Quality = (Good units produced / Total units produced) x 100

Each component of OEE provides valuable insights into the performance of a machine or production line. By understanding the factors that affect each component, manufacturers can identify areas for improvement.

## **Availability**

Availability is affected by factors such as:

- Equipment breakdowns
- Planned maintenance
- Changeovers
- Downtime due to lack of materials

## **Performance**

Performance is affected by factors such as:

- Machine speed

- Operator efficiency
- Process inefficiencies

## Quality

Quality is affected by factors such as:

- Equipment accuracy
- Process variability
- Material defects

Once OEE has been calculated, manufacturers can use data analysis to identify areas for improvement. By tracking OEE data over time, manufacturers can identify trends and patterns that can help them pinpoint the root causes of inefficiencies.

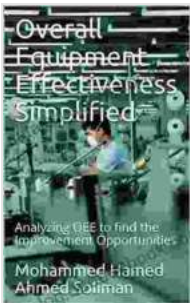
Some common data analysis techniques that can be used to uncover improvement opportunities include:

- **Time series analysis** can be used to identify trends and patterns in OEE data. This information can help manufacturers identify periods of low performance and investigate the factors that are causing them.
- **Statistical process control (SPC)** can be used to identify process variability and determine whether it is within acceptable limits. This information can help manufacturers identify sources of variation and make adjustments to their processes to improve quality.
- **Root cause analysis** can be used to identify the underlying causes of equipment breakdowns, downtime, and quality defects. This

information can help manufacturers develop targeted solutions to address the root causes of these problems.

Analyzing OEE is a powerful tool that manufacturers can use to identify areas for improvement in their processes. By understanding the components of OEE and leveraging data analysis, manufacturers can pinpoint the root causes of inefficiencies and make changes to their processes to increase productivity and reduce waste.

By continuously monitoring and analyzing OEE, manufacturers can create a culture of continuous improvement and ensure that their operations are always running at peak performance.



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