OEE Cheat Sheet

DEFINING OEE

Overall Equipment Effectiveness (OEE) is the preferred metric for measuring manufacturing productivity. OEE identifies the percentage of manufacturing time that is genuinely productive – with a score of 100% characterizing ideal production.

- OEE is useful as a benchmark to compare manufacturing productivity to industry standards
- OEE is an important KPI to monitor production productivity over time

OEE FORMULA

Overall Equipment Effectiveness is calculated based on its three seperate components: availability, performance, and quality.

OEE = availability x performance x quality

Availability

- Percentage of planned production time that is operational. Also known as Uptime
- **Availability = run time / planned production time**

Performance

- Percentage of actual process speed compared to ideal cycle time
- **Performance = (ideal cycle time x total count) / run time**

Quality

- Percentage of acceptable units out of total units manufactured. Also known as first past yield (FPY)
- **Quality = good count / total count**

OEE BENCHMARKS

An OEE score of 100% signifies perfectly efficient production. While every industry is different, below are some general OEE benchmarks based on averages across industries:

- **85% OEE Score:** considered world-class performance
- **60% OEE Score:** a typical score that indicates room for growth
- **40% OEE Score:** a lower OEE score more typical of organizations just beginning to track their
- operational performance

CALCULATING OEE

Below is an example of calculating OEE based on the component variables in our formula.

Components	Item	Data
Availability	Shift Length	8 hours
	Breaks	30 minutes
	Downtime	45 minutes
Performance	Ideal Cycle Time	1 second
Quality	Total Count	15,000
	Rejects	500

Availability

- Planned production time
  - Shift length - breaks
  - 480 minutes - 30 minutes = 450 minutes
- Run time
  - Planned production time - downtime
  - 450 minutes - 45 minutes = 405 minutes

Availability = 405 minutes / 450 minutes = 0.9

Performance

- (ideal cycle time x total count) / run time
- **Performance = (1 second x 15,000) / (405 minutes x 60 seconds) = 0.62**

Quality

- Good count / total count
- **Quality = (15,000 - 500) / 15,000 = 0.97**

Final OEE Calculation

Availability x Performance x Quality

OEE = 0.9 x 0.62 x 0.97 = **0.54 (54%)**