



OEE Consulting You want maximum output – we've got the right input



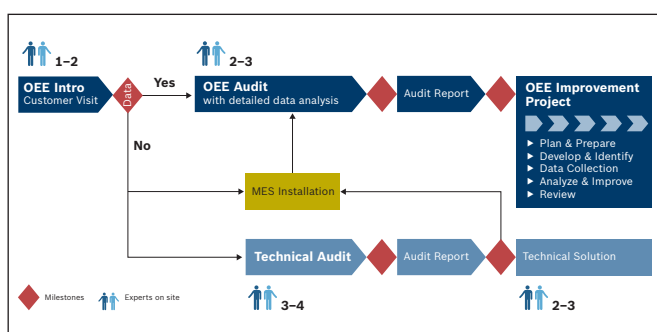
BOSCH
Invented for life

Creating Value to the Customer

Overall Equipment Effectiveness (OEE) is the ratio between actual good output and theoretical good output and takes into account the most common and significant sources of manufacturing productivity loss. With OEE as a key performance indicator, Bosch OEE Consulting defines improvements to your machines and systems to maximize actual good output. With many years of industry and machine specific experience, Bosch specialists identify the root causes of inefficiency to enable you to maximize profits. Our results are not just solutions, they are the best solutions with the best technical support available.

Service Approach

Our OEE Projects typically start with an OEE Intro, in which we analyze the machine status with a line check up and, together with you, define the next steps. Depending on the availability of a measuring system an OEE Audit is started, based on available data. Alternatively, we offer a Technical Audit on the line efficiency on manually based tools.



Your Benefits

- ▶ Evaluation of Overall Efficiency
- ▶ Bottle neck identification
- ▶ Reduction of factory losses
- ▶ Increased utilization and quality
- ▶ Increased machine availability
- ▶ Continuous process improvement
- ▶ Expertise in methods and technical know-how
- ▶ All from one company

In both cases, a report on the line efficiency finalizes this first step. Based on the analysis, either a Technical Solution, an implementation of a measuring system to obtain daily machine data, or an OEE Improvement Project will be started.

The OEE Improvement Project enables us to develop customer specific solutions by combining our joint expertise and competencies. We assess the machine's performance potential to reach your defined target using tailor-made solutions. A cost-benefit analysis lies at the center of this operation.

You will find your local partner at: www.boschpackagingservices.com

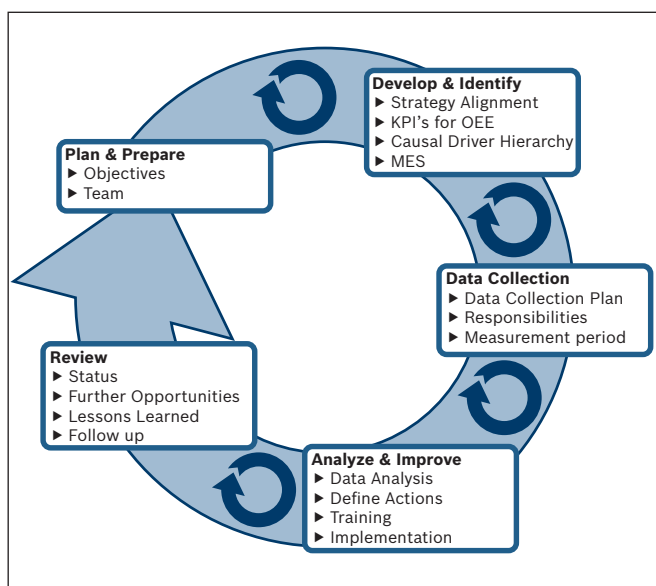


Profit through Investment

We clearly demonstrate to you from which point onwards your investments will be profitable. Our structured analyses are not just based on the packaging machine but on the entire line. A balanced approach focuses on the process and data environment and results in a detailed analysis, which identifies root causes validated with data. This methodology is shown by the OEE Improvement Circle diagram.

Structured Process

After many years' experience, Bosch OEE Consulting has developed a carefully planned structure to drive the optimization process, which consists of the following stages:



OEE Improvement Circle

Plan & Prepare

Transform the business-driven problem statement into a refined improvement project that reflects customer-validated parameters.

Develop & Identify

Determine a baseline process capability, with a validated measurement system, from a refined list of potential critical variables to help determine root cause(s).

Data Collection

Collecting sufficient and representative data to understand the variations in the process and the relationship between input and output measures.

Analyze & Improve

Establish a model that defines the relationship between inputs and outputs and identify root causes validated with data. This is followed by implementing solutions that address validated root causes.

Review

Demonstrate the ability to sustain the improvements through a process control plan. The lessons learned open further opportunities for continuous improvements.

From a basic upgrade to Bosch Packaging Services assuming overall responsibility for your maintenance – you will profit from solutions which are fine-tuned to enhance your production process.

Calendar Time		
Scheduled Time		Planned Downtime
Available Time	Availability Losses	Unplanned Downtime
Process Time	Performance Losses	Delay time (minor stops, reduced speed)
Net Process Time	Quality Losses	Scrap, Reworks
OEE = Availability x Performance x Quality Rate		

Overall Equipment Effectiveness

The term Overall Equipment Effectiveness takes into account the most common and significant sources of manufacturing productivity loss and organizes them into three classes: Availability, Performance and Quality. All three factors, and OEE itself, are generally expressed as percentages, allowing for ease of comparison and improvement measurements.