![Prediktor logo] **prediktor**

OVERALL EQUIPMENT EFFECTIVENESS

UPTIME AND DOWNTIME REPORTING.

Measuring and reporting OEE as a key performance indicator is an important task for plant managers. OEE was defined to measure production performance and focuses mainly on calculating a relative productivity for production equipment that can be monitored and evaluated over time. However, calculating OEE for a complete production line or plant enables rapid comparison with other production lines or plants for use in improvement work. Prediktor's OEE solution consists of both analytical and online OEE. Online OEE is targeted towards real time feedback to process operators and let you graphically see trends for a defined part of the process on online screens. The online OEE number can also be displayed on large screens in the production hall or integrated with other real time information in visualization overviews, either in a Prediktor or third-party system. OEE is used for:

• Supporting improvement work and processes
• Showing a production "speedometer" for enhanced awareness

• Benchmarking between processes, lines, plants etc.
• Reducing losses and quality deviations

Prediktor's Analytical OEE solution gives you the freedom of defining a time filter, look at parts of the process and even analyze the difference between different products. It also lets you dig into history of your plant's OEE and raw data and display graphs for easy comparison. A periodic OEE report may also be defined where a set of email recipients get their OEE report automatically in their mail inbox.
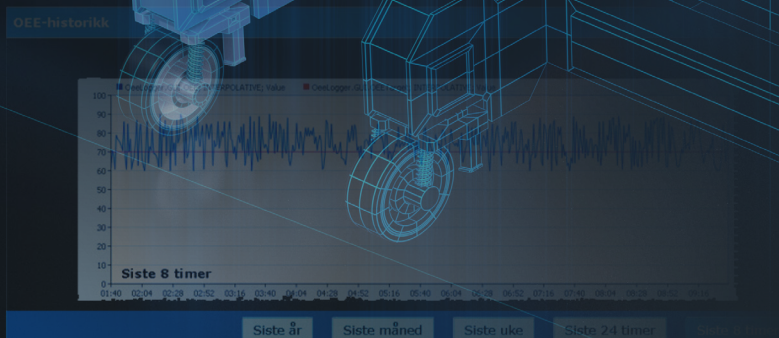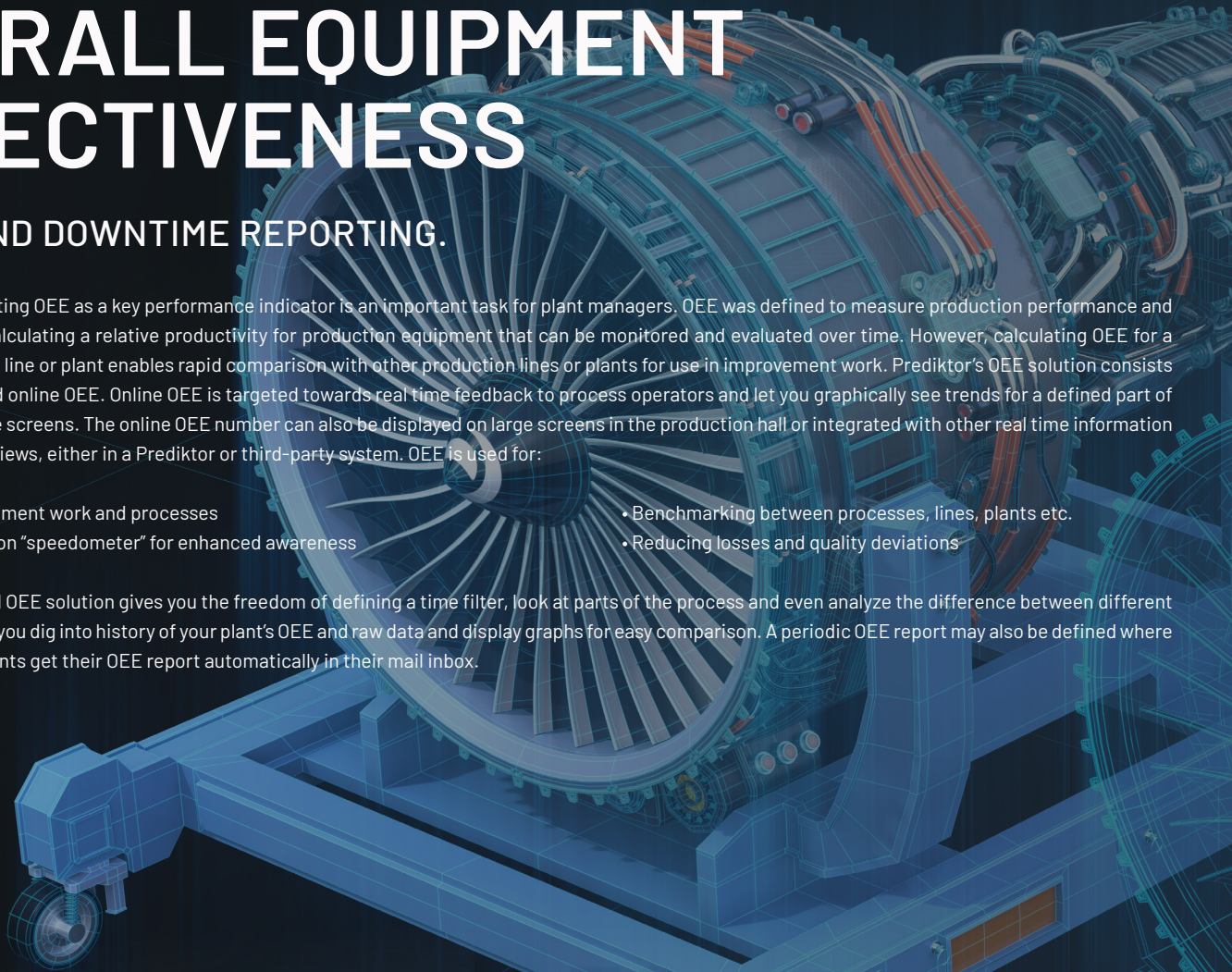
FLEXIBLE
REAL-TIME OEE
REPORTING

(OEE)
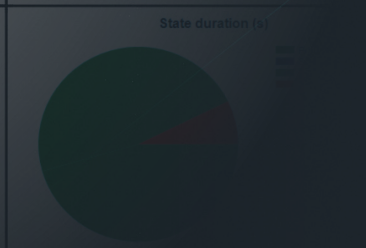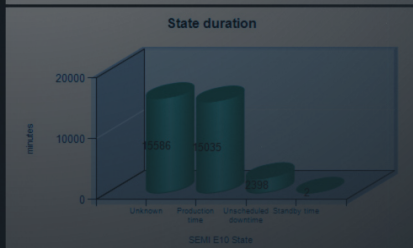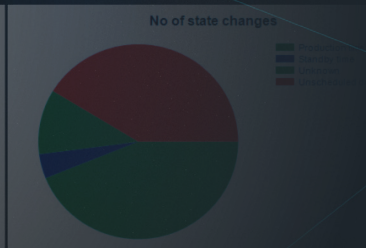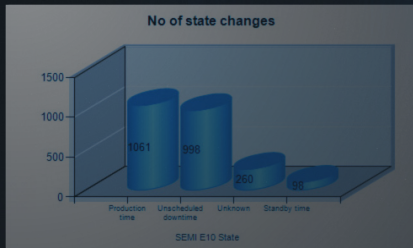
Quality

One parameter which is useful for OEE calculations is the product quality observed after a process step. The product quality may be captured by using the APIS Click&Trace MES solution from Prediktor, or it can be calculated automatically based on available signal values from the equipment or a plant model. The product quality is normally the relationship between produced products and scrap products. Reduced yield correlates with lower product quality. Our consultants are experienced in finding robust ways of calculating correct yield parameters and can advise on how to find the best solution.

Available time is simply the time the equipment is scheduled to be producing. Factors that influence negatively are equipment errors and failures, setup times, waiting time, maintenance, problems that cause idle time, reduced speed, etc. Some of these factors are necessary losses, which, however, should be reduced as part of the continuous improvement process of your production methods. Equipment availability is recorded in real time with data from the equipment itself, if the equipment has the possibility to report availability states. If this is not possible, the equipment state may be detected to some degree and a final state decision may be made manually by an operator. States may also be corrected if erroneous decisions are made. If equipment data is not available directly, operator input can be used instead.

Availability

Performance

The ideal production rate is a theoretical estimate of your process' maximum production. This number should be conservatively set, so that performance calculations never exceed 100%. The performance can be different between different products and process units, and the relation between them is recorded in the web interface of the APIS Click & Trace portal together with the ideal production rate and ideal cycle time. Reduced speed, small stops and waiting time are negative factors that influence performance. Normally, performance is measured by counting products or product amounts directly from equipment or from operator touch screens.

The heart of successful OEE-calculations is correct data collection. The APIS Click & Trace MES gathers machine states, product counts and quality decisions into one data repository. Input may be automatic from the equipment, or MES logic may derive equipment states from other sources of information. The MES may also gather data by operator touch panels, standard operator terminals, or a combination of sources.

Data Collection

Up and Down Time Reporting

As availability states are collected for the OEE measurements, reporting on equipment up- and downtime becomes an easy task since the source data is the same. The APIS Click & Trace web portal includes standard reports for exploring equipment availability, and lets you create advanced graphical reports for easy comparison of equipment states.

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