East Gate

OEE Calculation and Reporting

Made Easy with PROCE55

PROCESS
Improved Process Performance

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Introduction

Document description

This document describes a suggested implementation of OEE based on the PROCE55 solution.

Using real examples from various customers we show here how the OEE calculation and reporting can start working easily at your company.

Key features

- Fast implementation
- Continuous improvement
- Reusability of components
- Open architecture

Note:

Technical details, such as the database architecture, suggested hardware, backup and maintenance can be found in separate documents.

OEE - A Suggested Implementation

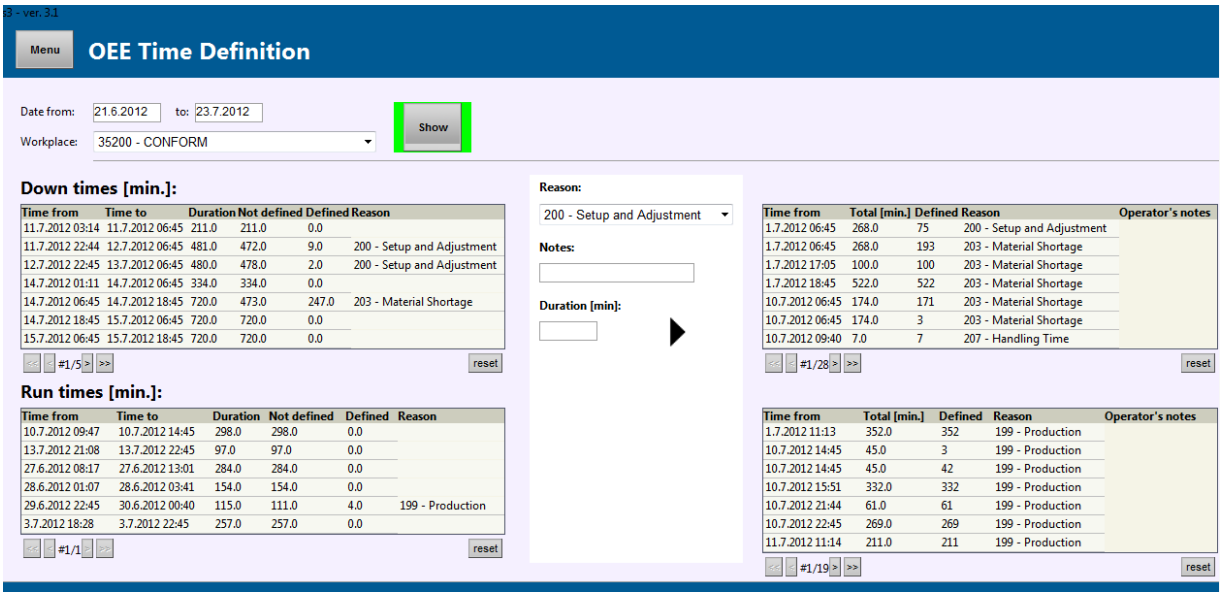
The following chapters contain a few examples of the OEE related screens from real implementations at our customers.

Background data collection

For the OEE calculations to work properly it is necessary to collect the machine status data on a regular basis. This can be machine RUN/STOP status, current speed, amount of products finished within a certain time frame or other data. The frequency of machine data reading can depend on many factors, but for most cases 1 read per minute should be sufficient. The most important value will be the machine RUN/STOP status, so that we know exactly at what time a machine stopped or resumed the productive operation. Every such detail available is then stored in the system database for the OEE processing.

OEE time definition

If there is no automatic way of defining the collected down time (machine STOP) intervals, machine operators should define them using properly customized screens. Such screens or their parts can be integrated into the production confirmation process screens to provide a fluent and simple way of defining the stop intervals as they are generated in the real time. An example of a specific time interval definition screen is in the picture below:

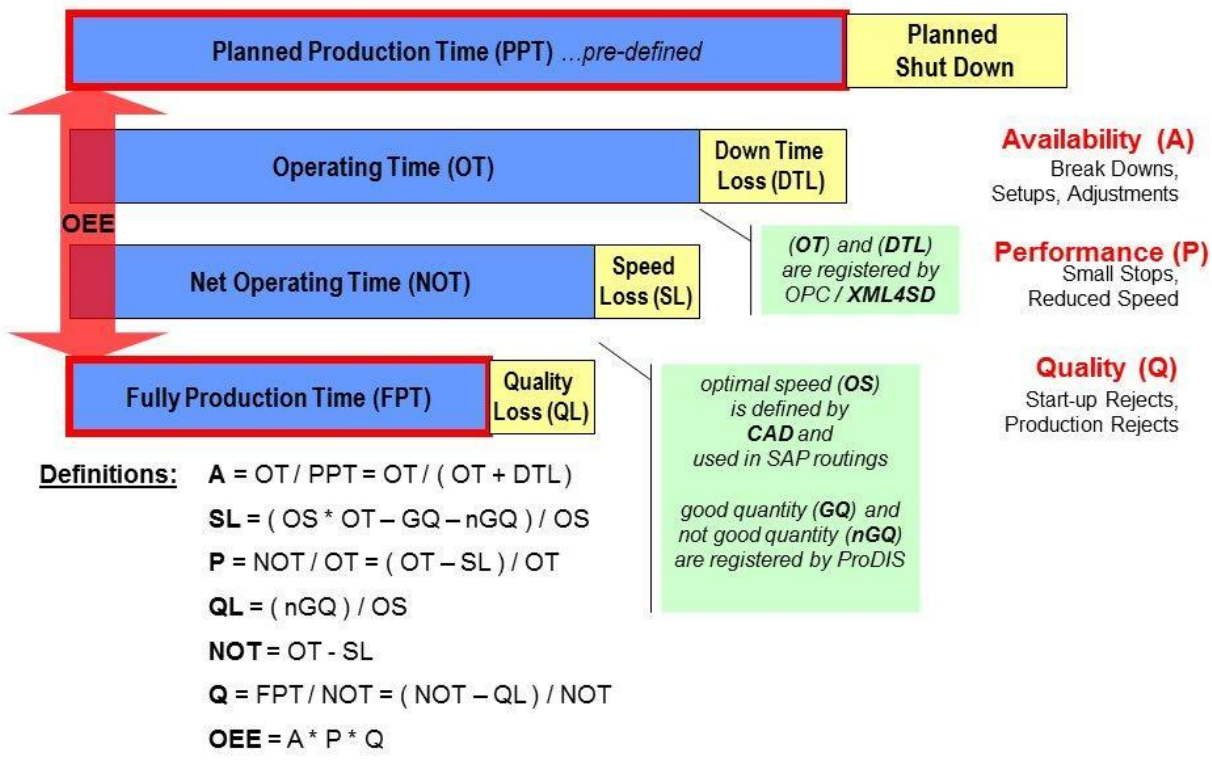


OEE reports

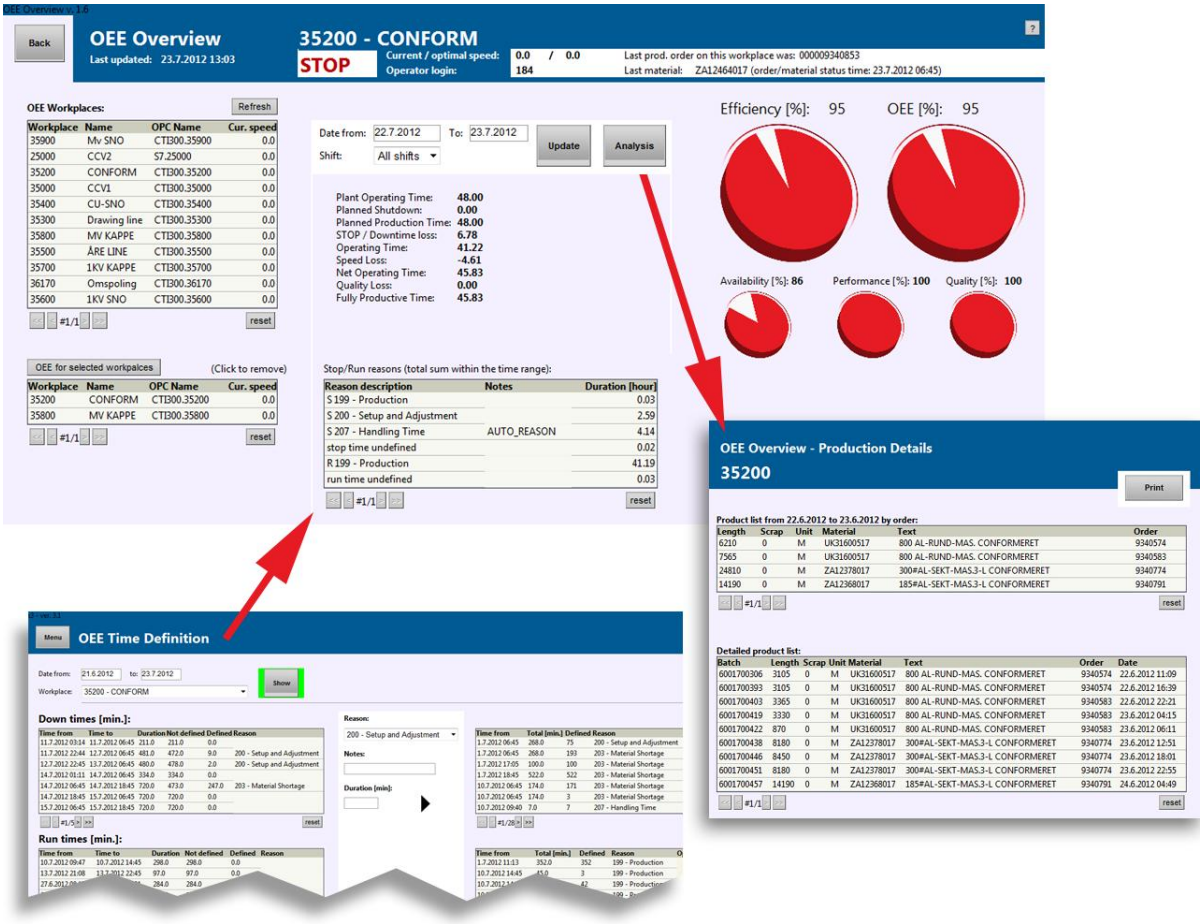
Based on the collected input data it is possible to calculate all the important components of the OEE (Availability, Performance and Quality). If needed, many other figures can be calculated and displayed in reporting screens. For example:

- Plant operating time
- Planned shutdown
- Planned production time
- Down times
- Operating time
- Speed loss
- Net operating time
- Quality loss
- Full productive time

The details and definitions of the above values which can be calculated based on the collected data are shown in the diagram below:

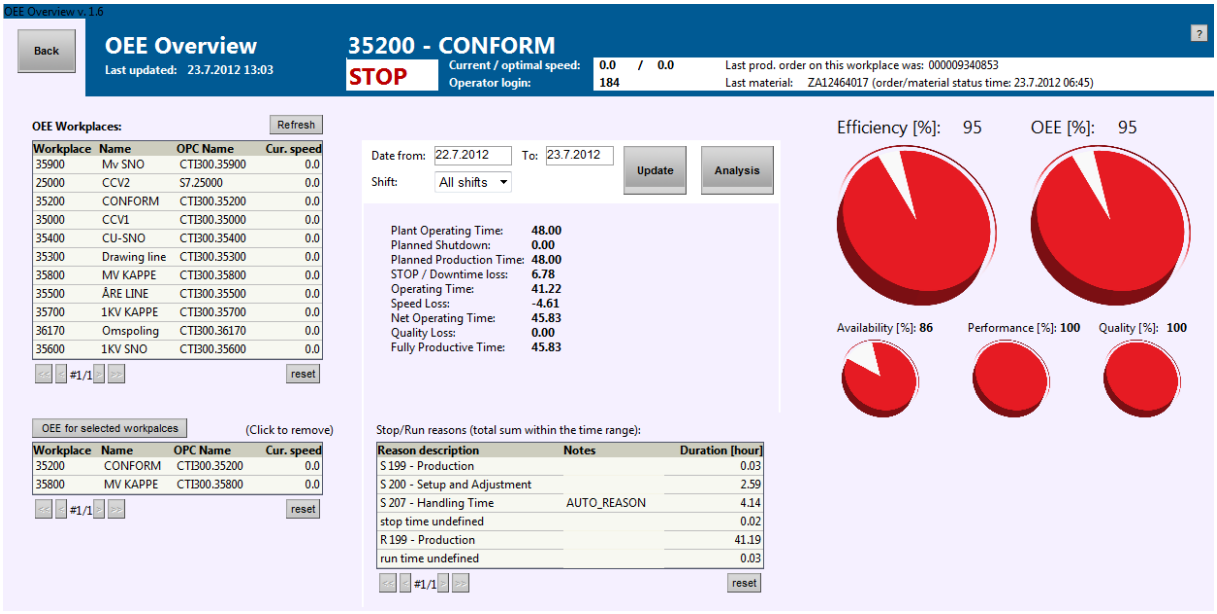


It can also be possible to show a list of confirmed products for a selected time range (e.g. grouped by order number) along with other details if the production data is available, or if the production confirmation processes have been implemented (or enabled).



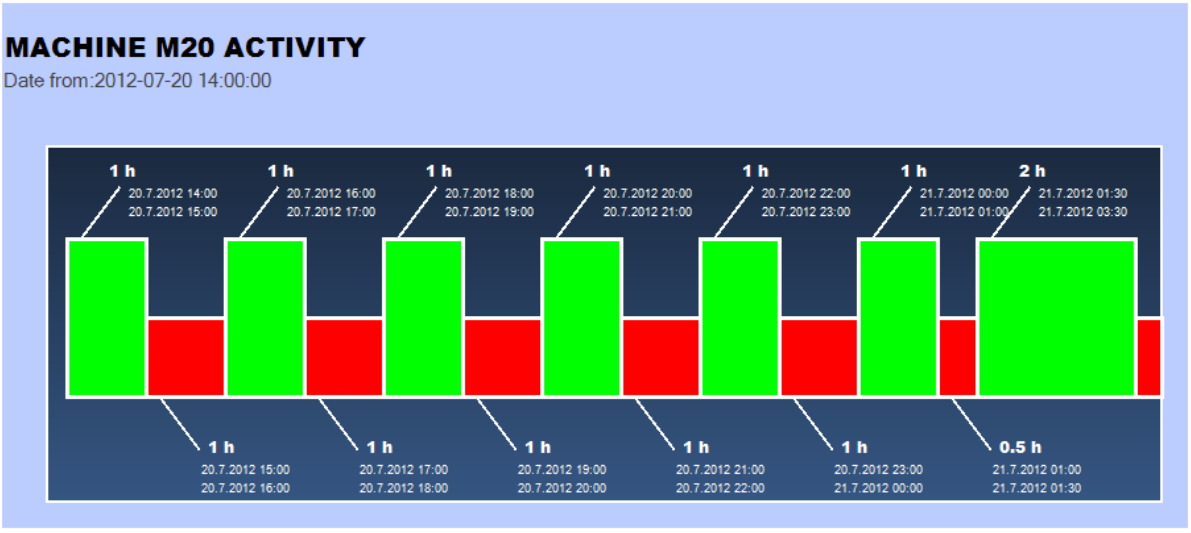
An example on the next page shows a detail of an OEE report screen with a list of machines (workplaces). If a workplace is selected from the table on the left side, all the OEE figures are recalculated and displayed again for the selected workplace and the time range. The table in the middle of the image shows the down time interval for the selected time range.

It is also possible to select multiple machines to see the OEE calculation for the selected workplace group. Since the system communicates with machines (their PLC controllers or OPC servers) in the real time, there is also instant information if the machine is currently running (producing):



Machine activity overview

In many cases there is a need of displaying a history overview of the machine activity (availability). The image below shows an example of a graphical representation of the collected machine status data. Similar images and reports can be generated in the real time for selected time ranges and can form a part of any process where needed.



Contact

Contact us for more information about PROCE55 solutions:

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