OEE – Overall Equipment Effectiveness

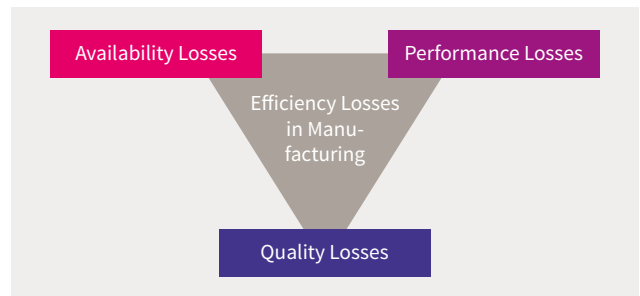## Optimising Machine Efficiency in a Production Environment

Efficiency losses in line 3? Customers suffer unnecessary order fulfilment delays and the overall reject rate is growing? Lack of data for pinpointing optimisation potential?

The answer is: equipment availability and throughput can be made visible, controlled and improved through effective measurements and analysis of machine performance data. The subsequent calculation of Overall Equipment Effectiveness (OEE) and the identification of bottlenecks and performance wasters lead to corrective measures for optimising the productivity of your manufacturing process.

The Challenge

Equipment capacity is seldom exploited to full potential. Causes are unplanned standstills, intermittent stoppages, delays during equipment operation, faulty parts and an excessive reject rate. Despite high machine utilisation the results in terms of quantity and quality are mostly below expectation. The effect of this can be felt not only in the production department through added personnel and material costs, but also throughout warehouse logistic and in the entire fulfilment process of the company. The implementation of improvement measures is often based on »gut decisions« without any real ability to measure overall effectiveness.

Overall Equipment Effectiveness (OEE) is a measure of the overall efficiency of equipment, installations, production environments and finally the entire enterprise. Causes for efficiency losses are hereby the primary focus aiming to pinpoint potential for production optimisation and then to implement appropriate measures for better equipment control and
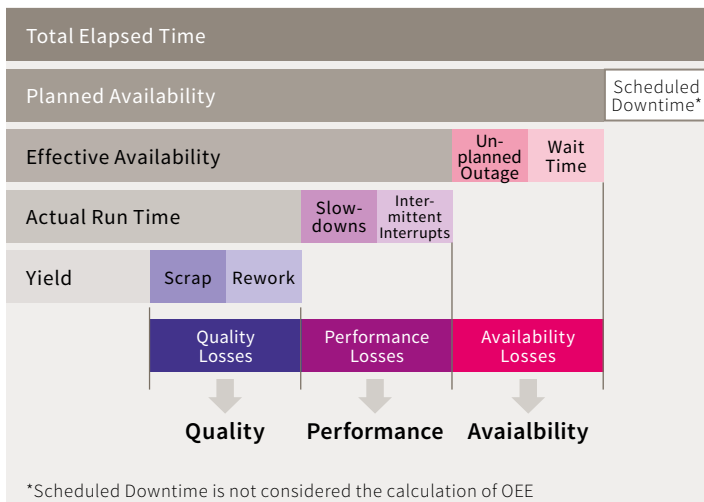

Magic triangle: Availability, performance and quality are interdependent of each other and must be viewed as one.

operation. However, the individual factors which negatively impact equipment efficiency should never be treated in isolation. An integrated model of all measurements and ratios should be established. Only a comprehensive view of all contributing loss factors will later provide a clear picture of which measures actually led to improvements in throughput, quality and lower costs. Creating such a model, however, is a major challenge for many manufacturing companies.

The Solution

QlikView's OEE key data analysis model can be adapted to your specific requirements whether you wish to implement the VDMA OEE definition or prefer your own understanding of equipment efficiency. This innovative tool allows you to x-ray the measurement data of your equipment park in order to identify efficiency improvement opportunities. The calculation of OEE ratios is fully automated. The subsequent data analysis helps to pinpoint loss factors within the production environment or even as related to adjacent processes. The data can be analysed and viewed from different angles, facilitating the detection of significant interrelationships, and QlikView's clever memory management delivers results in seconds. The insights gained help to formulate well founded
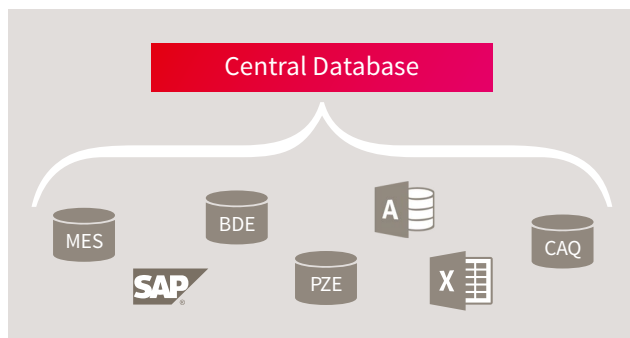

*Scheduled Downtime is not considered the calculation of OEE

Schematic representation of Overall EquipmentEf fectiveness (OEE)

improvement measures. In addition to the implementation of an OEE analysis capability, we assist you in the development of individual production control procedures and the definition of an integrated data model based on data availability within your installation.
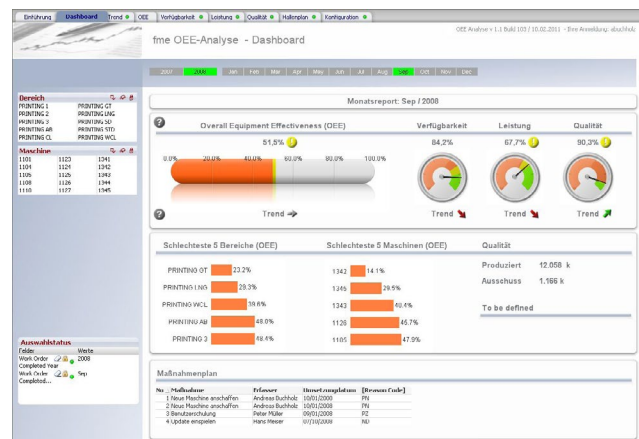
Production data from sources such as SAP®, CRM, BDE/MDE, PZE, CAQ or Excel can be easily integrated with QlikView. Complex data warehousing is not required so that first analysis results can be delivered within days or weeks. What used to be a complex undertaking can now be implemented and extended in a manageable step by step mode. A changing data model does not lead to a new IT project. The new data ratios can be easily redefined using the software interface. For the Analysis of SAP® data, QlikView provides a certified QlikView Connector Powered by SAP NetWeaver®, which extracts data from SAP® modules and the SAP®-BW to combine these with non-SAP® data. Tables, queries, OLAP definitions and reports can be extracted from SAP®, and the integration of Excel or text based files is easy to implement with QlikView.

The Technology

With its unique in-memory technology, the analysis and reporting tool QlikView revolutionised the Business Intelligence world. The software has been designed to deliver immediate results so that users can carry out detailed analysis whenever they need them. There are practically no limits to the kind of analysis possible. Compared to other BI systems there is no need for the time consuming effort of defining and filling cubes or datamarts. Data is kept in main memory,

For the analysis a range of operational production systems need to be integrated

Dynamic QlikView based dashboard as the basisfor the analysis of efficiency loss factors

representing a significant gain in system performance and effort, which translates into a ROI within weeks or even days as opposed to many months or years. QlikView can be used at the office, in the cloud, on a laptop or mobile on a smartphone – by a single user or the entire company. QlikView has more than 16.000 customers in more than 100 countries with over 1.100 partners worldwide, and fme is a certified partner since 2009.

Our Offer

• Review of the real OEE of your equipment installations

• Identification of bottlenecks and other contributing efficiency loss factors

• Planning of improvement measures based on reliable data analysis

• Cost reduction due to more effective equipment utilisation

• Better use of manufacturing resources

• Faster manufacturing throughput and customer order fulfilment

Detailed information on our consulting offering is available on request. Please give us a call – we welcome any challenge!