



Case study MES - Manufacturing Execution Systems support LEAN Manufacturing empowering shop floor personnel to take real-time decisions



1.1. Introduction

For Fast Moving Consumer Goods (FMCG) manufacturers, in particular within the food & beverages, beauty, pharmaceutical and industrial sectors, margins continue to be under increasing pressure. Continued price increases in raw materials, energy and personnel cost can only partially be passed on, as consumers are becoming more cost conscious. The supplies of low cost, discounted or cheaper trade products make it more difficult for brand manufacturers to survive under the current market conditions. Hence, in order to at least maintain or grow profitability and fulfil shareholder value expectations, the bigger portion of these increases has to be absorbed internally and counterbalanced by strategic efficiency improvements. This is, however, only possible through plant and process optimisation, which aims to let the business react fast to fluctuating demands, flexibly adjust the output and release hidden capacities.

This case study describes the benefits of a strategic implementation of software packages like [Manufacturing Execution Systems \(MES\)](#) to effectively reduce cost, and specifically minimise production losses in downtimes, quality and speed. One of those MES products on the market is Factory MES, formerly known as CDCFactory [MOM](#), created by the US software company [APTEAN](#). It is designed to transform manufacturing performance by empowering people to make real-time decisions that will require immediate execution. By standardising the best practices of lean manufacturing, OEE (Overall Equipment Effectiveness) and Continuous Improvement, Factory MES provides a real-time framework that integrates scheduling, operations, quality and maintenance. As the software package is an out-of-the-box system, which is tailored and configured on site to each customer's need FBC was engaged to implement this MES for the German headquartered Intersnack Group in their 15 plants across Europe.



1.2. Clients Brief

In 2010, Intersnack Group had announced plans to implement CDCFactory at 15 additional plants across Europe based on the initial successes of its CDCFactory implementation at the company's Netherland's plant the year before. Aptean, the former CDCSoftware company, supplied the soft- and hardware and our task was to implement and configure the system, develop the training material and train the personnel in the various organisations in respect to how to use the system and -more importantly- how to interpret the data. This included the management of organisational change, the identification of benefits and the realisation of showcase savings projects.

1.3. Implementation Support during the Realisation Phase

Depending on the size of the plant, time required for the setup, configuration and customisation takes around 6 weeks in total. Training is done in groups of 8-15 employees per session across shifts, very often in parallel with the last weeks of customisation. After that 1 week each is needed for system commissioning and the Go-Live phase.

The system monitors line status, quantities and time elapsing between any events, such as stops, speed losses or quality defects; it also triggers quality checks or regular reviews according to the plant requirements. It helps focusing on the manufacturing losses (fig.1) through displaying the real time results in a user-friendly way. The main task for the operators is to monitor the essential manufacturing performance KPI: OEE (Overall Equipment Efficiency), and its components Utilisation, Yield and Rate. As the system captures their development in real time and displays any deviations from the plan using traffic light colours (fig.2), it makes operator interaction with the system unavoidable requiring a timely improvement re-action to the yellow or red line status.

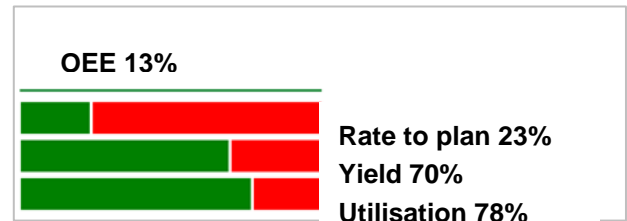


figure 1: OEE- loss visualisation (source: CDCFactory)

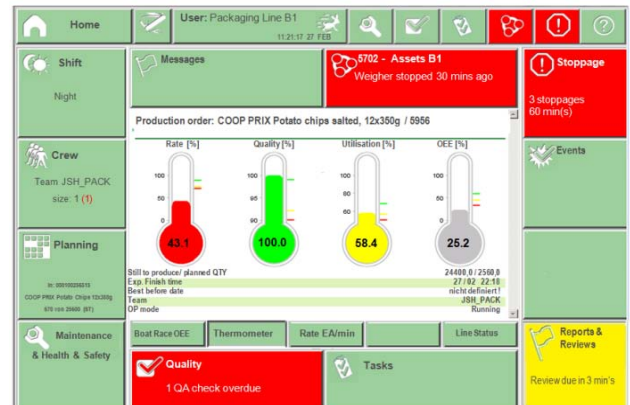


figure 2: performance home page (source: CDCFactory)

1.4. LEAN & Continuous Improvement Strategies

Factory MES offers a variety of tools to interpret data that have been collected over time and stored in an extensive database. Using either the built-in reports and evaluations or the complimentary evaluation software package for specific reports it allows operators and management to concentrate on the production losses, follow critical product, quality and line and machine developments, drill down to asset level for detailed information, document required quality and compliance checks, evaluate trends for shift and team performance, manage and control improvement activities and visualise cost savings potential within all manufacturing processes. In summary, Factory MES is designed to support and underline vital business decisions and enhance profitability.

1.5. Results

Usually, after 6-8 weeks after Go-Live the database provides enough usable data to start looking for the first cost saving opportunities and benefits of the system. Applying a drill down analysis approach and using 6 Sigma and Lean tools, combined with facilitated Pareto and/or CEDAC exercises, the most impactful improvement arena is downtime or utilisation loss reduction. 6 weeks representative data are already sufficient to allow extrapolation of annual losses, in particular when there are repetitive stop times that happen several times per shift, in all shifts and every week. Assuming a minute downtime in the packaging departments costs the enterprise at least 1.00 EUR each, this has resulted in significant savings potential.

FBC Ltd was able to help identify savings opportunities between EUR 30k and 80k per plant during just one week of thorough analysis. Across the 15 plants this alone represented savings on a Group level in excess of EUR 600k. We have witnessed significant OEE improvements and the workforce embracing ownership of their performance. For the Client, these successful implementations have established a standard OEE platform across the various sites on which further decisions to move towards Operational Excellence can be based.

FBC Ltd. can also assist you on your route to sustainable Operational Excellence !