

# PRODUCTION CENTRE MONITORING



## Production means, machines and equipment runs monitoring

Within the monitoring of production centres the data and some functionalities of MES PATRIOT included in the Production Rationalisation module are monitoring the runs of production assets. Alternatively they can be implemented separately for this purpose without the Production Rationalisation module. Additional data for monitoring can come from the Energy Dispatch.

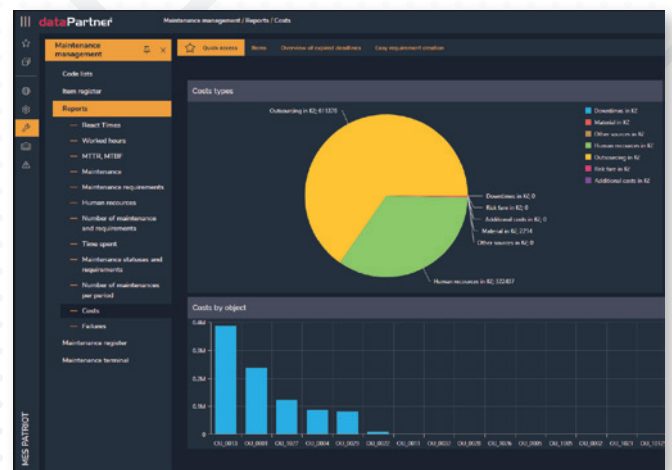
The production means monitoring module displays and records the following data:

### » Utilization and downtime (KPI and OEE indicators)

The most requested key indicators are information on the amount and causes of downtime and machine utilisation. MES PATRIOT calculates and displays all selected Overall Equipment Effectiveness (OEE) indicators online and calculates and evaluates selected KPIs that arise during production according to customer requirements. These can optionally be:

- Relative cost of external and preventive maintenance
- Relative workload of corrective and preventive maintenance.
- The level of preparation and planning
- Relative nominal equipment time pool
- Production centre utilization
- Average fault interval
- Average duration of troubleshooting

The quality of the calculation of key indicators and the overall efficiency of the use of production equipment depends on the size of the data set and the quality of the monitored data.



### » The current energy consumption

Clearly displays the consumption of selected commodities; either based on data from the Energy Dispatch Centre or from separate measurements. It also monitors compliance with agreed consumption schedules. The Run Monitoring module can be efficiently connected to the maintenance management system to which it transmits information on operating hours and machine loads. This data is used to automatically fine-tune the maintenance schedule.

## Energy dispatch

Energy dispatching is used for monitoring and controlling energy consumption in production centres; for controlling the use of electricity, gas, water, heat and exhaust air or other gases down to the level of individual machines. It monitors and manages compliance with energy balance ¼ hourly and hourly agreed consumption minimums and maximums including control of supply from own production.

It can also monitor power quality: active/reactive ratio, harmonic distortion and interference, and can monitor outages or phase sequences. It can manage backup power supply with flexible strategy according to the specific conditions of backup power supply during power outages in production.

**Energy dispatching is a modular solution that can work independently. It consists of the following parts:**

- » Production centre energy supply monitoring
- » Managing the agreed energy supply
- » Energy balance
- » Securing the backup electric energy supply
- » Electric energy quality monitoring

If the customer is already using the PATRIOT® MES Maintenance module, the tracking of actual operating hours and loads or parts can be implemented in this module to optimize the maintenance schedule.

**The system enables:**

- » Overview of energy consumption on a global scale
- » Negotiating the exact tariff with the energy supplier
- » Energy management output for top management
- » Compliance with the globally recognised ISO 50001 (Energy Management) standards
- » A coherent and clear approach to smart energy use
- » Optimising absolute energy consumption
- » Optimisation of energy sources
- » Increasing energy efficiency
- » Demonstrable cost savings through a systematic approach
- » Energy management based on measurability
- » Increased competitiveness on the market
- » Overview of energy consumption at local level
- » Budgetability of costs per line
- » Calculability of costs per unit produced
- » Monitor fluctuations in energy consumption during the day
- » Comparison of energy consumption of similar production units - pressure on line suppliers to reduce energy consumption of new production lines

