

PMC Consulting ASAP-CRS Manufacturing Execution System

Manufacturing Execution Systems

A Manufacturing Execution Systems (MES) is a system for the factory floor - as opposed to a cost accounting system or a Material Requirements Planning (MRP or MRP II) system or a financial accounting system. An MES system enhances your front office accounting system, it does not replace it. Planning and forecasting systems are also typically part of the accounting or MRPII system, although an MES can provide significant help with the short term planning.

The production process is usually a complicated affair that requires detailed scheduling and sequencing of steps to build the product. It often uses materials with wide variances, and must be concerned with reducing this variability so that a consistent working product can be made. These variances, plus machine breakdowns and machine operator differences and material and tool problems often frustrate the planning process since these problems are typically not reported back to the planning stage. This is where a good MES system can fill the gap.

What are the Benefits of an MES?

According to MESA International (the Manufacturing Execution Systems Association), manufacturers who installed an MES system experienced a 45% reduction in manufacturing time.

How did they do it?

- Reduced data entry time - 2/3 of them realized a 75% improvement.
- Reduced work in Progress - 57% reported a WIP reduction of 25% or more.
- Less Shift End Paperwork - 63% reported a reduction of 50% or better.
- Reduced lead time for orders - 63% reported reductions of 35% or better.

Other benefits

- Improvements in product quality
- Less lost paperwork

The pay back period was typically 14 months (average).

What Comprises an MES?

1. **Resource allocation and Status.** Manages machines, tools materials etc., according to the operations schedule.
2. **Operations Scheduling.** Provides sequencing based on priorities and due dates. Includes a Finite Capacity Scheduler.
3. **Production Flow.** Handles the jobs orders and batches in sequence. It can adapt to machine downtime, and can cope with scrap, salvage and rework processes.
4. **Document and Data Control.** Holds historical data in a plant wide database. Can handle ISO 9000 tracking requirements. Can provide additional data and recipes to operators if required.
5. **Data Collection & Acquisition.** Data may be collected manually, or by direct interface to PLC's and NC machines. The manual forms are normally replaced completely.
6. **Quality Management.** Records QC data in real time, and can assist in determining if product downgrades or scrap is running out of normal range.
7. **Process Management** Monitors production & order status and can assist operator with process improvement. It may include interfaces to alarms on PLCs & intelligent control units.
8. **Maintenance Management.** Tracks maintenance periods through the resource calendar to ensure proper preventative maintenance. Maintains a machine history.
9. **Product Tracking.** Provides order visibility at all times, and can track lot numbers, current conditions etc.
10. **Reporting and Performance analysis.** Up to the instant production reporting - within the limits of data collection.
11. **Labor Management.** The system can track standard labor costs and/or actual labor costs according to your system. May provide time and personnel reporting, or can use data from other systems.

How to Learn More

We would be pleased to provide additional information from our library on technology solutions for manufacturers. Please contact us at (289) 231-8660 to request additional materials, or to ask questions about our systems.