

Scheduling

GETTING MORE FROM HIGH-MIX MANUFACTURING



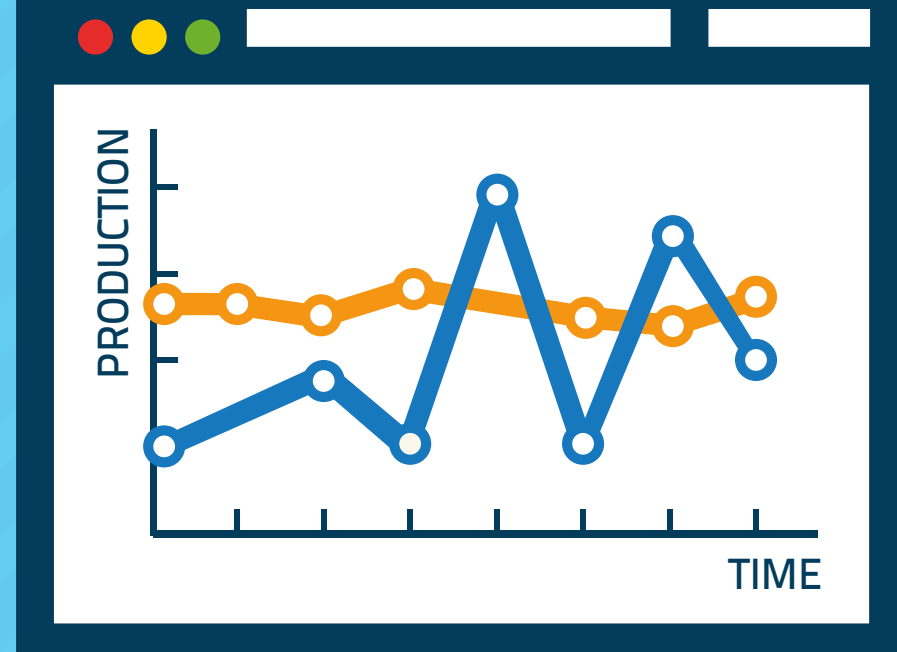
Scheduling determines what each resource should do to fulfill a certain mix of orders in a near-term timeframe.

The goal is to improve on-time delivery, shorten total cycle time, and make better use of resources.

Why Scheduling is important

Scheduling is a buffer between demand and production.

It enables effective use of plant resources by implementing the production plan driven by customer demand.



WITH SCHEDULING

WITHOUT SCHEDULING

Key benefits of Scheduling



Scheduling vs. Planning vs. Dispatching



Scheduling optimizes operations execution and management for a period of hours to a few weeks.

It does not replace other tools for tactical (mid term) and strategic (long term) planning.

It ensures that the very short-term dispatching of orders is based on optimum loading of each resource at that time.

Why integrate Scheduling into MES?

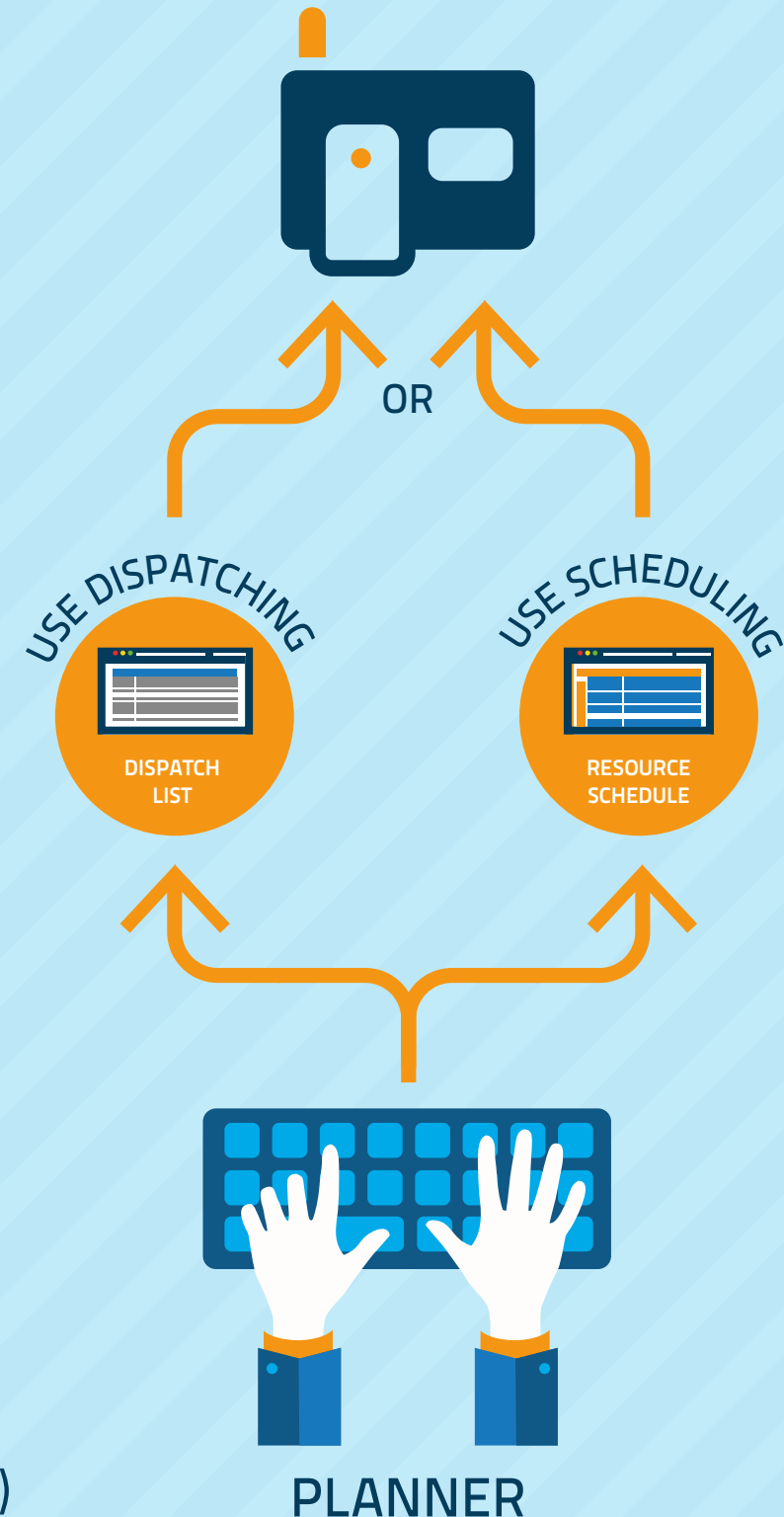
Scheduling is natively integrated into the Critical Manufacturing MES in order to:

- Avoid Master Data duplication;
- Always consider the real-time status of the shop floor;
- Include all planned shop-floor activities managed by other MES modules;
- Allow using scheduling or dispatching in different areas of the shop floor;
- Eliminate the need to maintain an interface between the MES and scheduling.



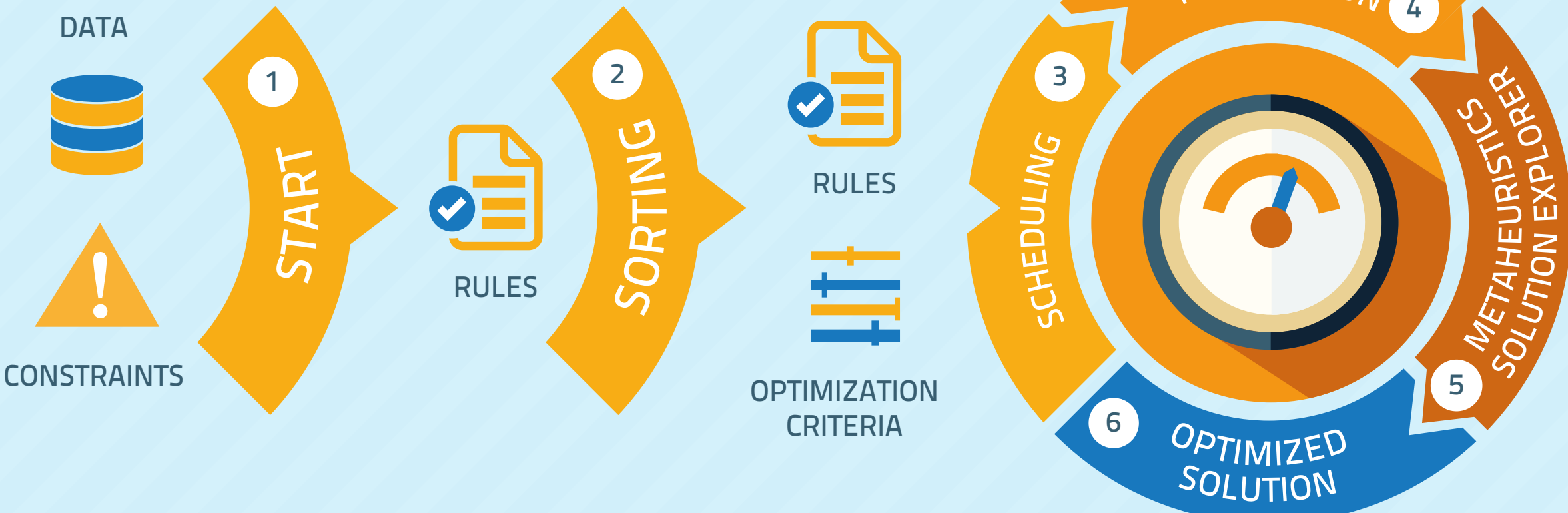
How it works

- GENERATE MASTER DATA**
 1. Define the factory model
 2. Load the orders/materials and equipment
- GENERATE SCHEDULE**
 1. Define the optimization criteria
 2. Generate schedule
- FINE TUNE SCHEDULE**
 1. View generated schedule
 2. Make manual adjustments
 3. Optionally, regenerate schedule
 4. Release schedule
- EXECUTE THE SCHEDULE**
 1. Each resource will be configured to use dispatch lists or scheduling information (mutually exclusive)



The optimization process algorithm

To generate the schedule, Critical Manufacturing MES uses two-step optimization process:



Optimization Multi-Criteria

Schedules can be tailored to the specific needs of the facility by applying different weights to optimization criteria.

MINIMIZE SETUP TIMES	2%
MINIMIZE WAITING TIMES	3%
MINIMIZE DELIVERY DELAY TIMES	7%
MAXIMIZE MACHINE LOAD	4%
MINIMIZE BIGGEST DELIVERY DELAY	9%
MINIMIZE DELIVERY DATE DEVIATIONS	10%
MAXIMIZE DELIVERY FULFILLMENT	8%
MINIMIZE NUMBER OF LATE DELIVERIES	11%
MINIMIZE QUANTITY WEIGHTED CYCLE TIME	13%
MINIMIZE PRIORITY AND QUANTITY WEIGHTED CYCLE TIME	18%
MINIMIZE PRIORITY WEIGHTED DELIVERY DELAYS	15%

