

# **Scheduling** for Discrete Manufacturing

Transform any high-mix or custom discrete manufacturing environment into a predictable, reliable, flexible, demand-driven operation – with patented nMetric scheduling software.

nMetric's goal is to make the job of scheduling all high-change, high-mix manufacturing environments easier, less time consuming, and more productive.

Our scheduling software directly addresses your scheduling challenges and allows you to manage your business more effectively and efficiently, by:

- Maximizing on-time completions despite ever-changing and often invisible scheduling problems
- Knowing the status of all your orders, right now and 24/7
- Highlighting where your bottleneck will be today, tomorrow and next week
- Seeing the impact of constant change and ensuring that your decisions will improve business outcomes
- Confidently telling your customers when any order will be completed, ahead of time, if it's late

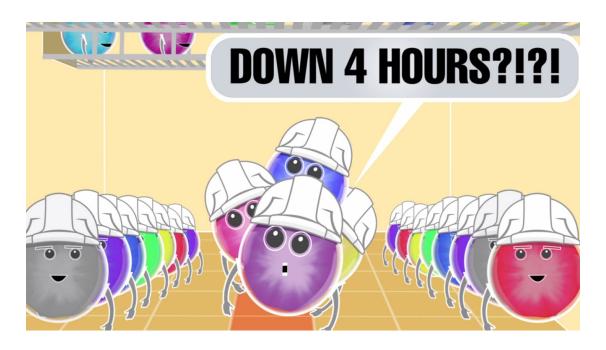
# A unique scheduling solution

In general, planning and scheduling are difficult due to the uncertainty inherent in predicting the future. Traditional scheduling is often built on a plan that uses the past to predict what is going to happen. As the complexity and potential variability increase due to a changing product mix and shifting customer order patterns, predicting the future is a gamble. Also, in a traditional schedule, work is scheduled to a specific resource without capturing the knowledge of why that resource was chosen for that particular task or job. However, that is precisely what nMetric's Smart Job technology does. nMetric scheduling software has been designed to define the attributes (skills and capabilities) of all resource types – the people, machine work centers, tools and materials required to complete the task or job. Why is this a better way to schedule? Because all resources capable of completing the work are known, thereby defining all options available if something does not go according to schedule. nMetric also notifies you of any changes as required, all in real time, providing the ultimate in scheduling flexibility and efficient utilization of all resources.

Once the attributes for the resources and tasks are defined, nMetric optimizes schedules heuristically, based on multiple criteria including task dependencies and priorities, to maximize on-time completions. It breaks down every order into a series of self-routing, self-supervising Smart Job distributed software objects. Smart Jobs reserve the resources required to ensure task

completion based on resource attributes – that is, their specifications and capabilities. This gives Smart Jobs the flexibility to find and reserve a different, suitable resource should its original choice become unavailable.

Using real-time status feedback from Smart Jobs and information from your existing systems, nMetric replicates your environment virtually and presents it in an easy-to-review Gantt chart format. You get a highly accurate and dynamic view of your production capabilities, with complete visibility even as adjustments and changes occur in the actual environment.



### Realize the benefits of Smarter Scheduling

The nMetric landing page provides at-a-glance summaries of your operation environment and its challenges. KPI graphics and drill-down metrics include:

- Lateness percentage
- Lateness details
- Cycle Time (historical and scheduled)
- Throughput (historical and scheduled)
- nVironment® Peak and Low Capacity Utilization graphics



With nMetric scheduling software, you'll be able to realize all of the following benefits, while spending less time on scheduling, expediting and rescheduling the work going through your facility:

- Improved on-time completions
- Less expediting
- Increased throughput
- Shorter cycle times
- Increased flexibility
- Dramatically decreased lead times
- Minimal buffers and inventory
- Improved customer satisfaction through:
  - » Shorter response time to customers
  - » Accurate order promise dates
  - » Much greater ability to keep delivery promises

#### What nMetric does.

#### Dynamically schedules tasks to the most appropriate resources

- Resources scheduled based on skills and capabilities (attributes)
- Load levels work on like resources for maximum on-time performance
- Alternate resources clearly identified onscreen for easy drag-and-drop moves
- Ability to pin or anchor tasks to resources and time if desirable

#### Complete dynamic visibility into the true demand on resources

- Smart Jobs know the capabilities of the resources they need and schedule themselves on appropriate resources using task dependencies and priority to determine queue sequencing.
- Dynamic Gantt chart views of future demand and available time for resources to identify production bottlenecks
- Real-time on-screen task status tracking and lateness
- Immediately adjusts and re-schedules when resources become unavailable
- nVironment® graphical views of future capacity utilization for advance identification and resolution of resource constraints

#### Responds continuously to frequent changes in demand and resource availability

- Real-time, automatic and manual schedule modification that reflects actual changes in task completion
- Real-time rescheduling according to resource availability
- Optimizes resource utilization based on priority and due date

#### Schedules multiple resources to tasks according to priority

- Identifies and reserves Smart Job distributed software objectsmultiple resources and resource types to tasks
- Recognizes, enforces and maintains task dependencies as changes occur
- Dynamically sequences tasks based on user-configurable priorities
- Balances resource demand when multiple options are available

## Manages the unexpected and proactively resolve contentions or outages

- Real-time graphical KPIs and drill down of lateness, efficiency and throughput
- nVironment® capacity utilization graphics to identify production bottlenecks
- Event-based email alerts for proactive resolution
- Timely notifications of schedule data inconsistencies