



## Managing resources vs. managing constraints

The fundamental necessity of ERP software in manufacturing is widely accepted for good reason—manufacturing has evolved to a level of complexity and speed that demands suitably sophisticated software. For many manufacturers, that complexity now surpasses what most ERP solutions were designed to manage independently. At this point, you may need to add advanced planning and scheduling (APS) solutions to your ERP implementation in order to cope with a constantly accelerating, increasingly volatile business environment.

ERP and APS play distinct but important roles in helping manufacturers deliver results effectively and economically. To put it in simplest terms, ERP deals best with resources, while APS deals best with constraints. Even though many ERP solutions include planning capabilities, it's often more effective to put first-rate, constraint-based APS capabilities into a separate but connected solution.

While you almost can't operate without the kind of concrete, transaction-driven planning that ERP software delivers, ERP alone can leave you with an enormous blind spot with respect to production constraints and unexpected disruptions. An effective APS solution realistically simulates your production environment to help you predict the fastest, most efficient, and economical manufacturing plan for the situations you actually face today. With an APS solution built on sophisticated algorithms, you can create scenarios representing any number of "what-if" cases to help you rapidly adjust to unexpected situations.

### APS benefits include:

- Boosting capacity utilization
- Reducing work-in-process
- Minimizing finished goods inventory
- Improving on-time delivery performance

Possibly the most important benefit to a sophisticated APS solution is that it helps you make plans you can be certain you'll achieve by taking a wide range of real-world constraints into account, including:

- **Aggregate capacity of machines and labor**—One phase of your operation may be faster or slower than others. Your APS solution should be able to show you the most efficient way to organize your manufacturing process as a whole.
- **Labor skills**—If only a few employees can operate a particular machine, the system will recognize this as a capacity limitation and plan accordingly.
- **Special tools**—If special tools are essential to one phase of the process, APS accounts for the supply of those tools in building a plan.
- **Material availability**—If essential materials are scheduled for delivery on a future date, there is no point in planning production as if the materials were on hand today. Your APS solution should be able to plan for the situation you face in reality, not just in theory.
- **Production sequence**—APS can recognize the optimal sequence of production (e.g. "light-to-dark" or "can size") which will minimize lost time due to change-overs and clean-ups. This capability alone can boost productivity by as much as 25% without any investment in new equipment.

## Planning for increased agility with APS

The value that APS adds to ERP-based planning stretches the core capabilities of ERP. It also gives you the ability to meet today's challenges more effectively, with an extensive range of new planning techniques, including:

- **Minute-by-minute planning**-In the past, planning systems operated in daily buckets, and material lead-times were expressed in days. As long as a purchase order was delivered on the expected date it was considered on-time. APS is much more granular. When you can schedule everything from dispatch orders to production schedules to purchase orders on a minute by minute basis with APS, you gain more of the benefits of lean manufacturing.
- **Backward and forward scheduling**-Traditional planning techniques always approach plans from a customer date order and work backward from that date. The variability of lead-times almost inevitably results in a high proportion of past-due orders and unrealistic system requests that sometimes require you to deliver goods "last week" in order to meet planned schedules. An advanced APS solution combines back-scheduling with forward scheduling, recognizing that if you need to start today, you need to know the earliest date the product will be available to ship, recognizing capacity constraints. These additional techniques provide enormous improvement in the accuracy of promised order delivery times.
- **Fixed vs. calculated lead times**-Traditional planning systems assume a fixed lead time to produce an item. While you can calculate the actual touch time to produce an item with great precision, the actual end to end cycle time can vary by orders of magnitude. Handling and wait times in production are highly variable, because they depend on the load at a work center and the priority of the individual work order. An APS solution should calculate all these factors to determine actual cycle time, which yields a schedule that you can execute exactly as planned.
- **Visibility of orders**-APS tracks the critical path of each and every order in the system. If there is a fixed relationship between a customer order and a production process, as in a make-to order environment, you can constantly monitor the progress of that order and keep your customers informed.

**There's no point making a plan you can't accomplish. Infor Thru-Put builds plans based on your real-world capabilities so that you can deliver what you promise when you promise it.**

- **Capable-to-promise**-Available-to-promise, a widely available ERP capability, lets you promise or allocate unreserved stock to customer orders. However, when you have no stock on hand or production planned, available-to-promise capabilities leave you without a reliable way to give a realistic promise date to customers. Using an APS capable-to promise module, you can examine your whole supply plan, account for any gaps in capacity, and realistically assess the completion date of any new customer order you add into the system. This gives you a huge advantage in today's increasingly competitive business environment, where major customers can demand that you complete perfect orders and deliver at a specific hour.
- **Multi-site planning**-If your full supply chain comprises multiple factories, you need to plan all factories as a unit, particularly for products that you begin in one factory and then ship to another for finishing or packing. APS recognizes the interdependencies that develop between multiple manufacturing locations, including transfer times, as part of its planning logic.
- **Scenario planning**-Production planning and scheduling are no longer static exercises undertaken at the start of the week and frozen until the next planning run. You receive a flow of new customer orders daily, which forces you to re-assess forecasts as new trends arise. You might also launch new products or product variations every week to keep pace with customer demand. You'll be able to answer critical planning questions, often in minutes, thanks to the added speed and flexibility of APS.

# Understanding the role of Infor Thru-Put

Infor® Thru-Put gives you the most powerful APS capabilities available by building on a unique set of proven mathematical algorithms that have helped manufacturers worldwide improve performance and get better results.

By giving you a different view of your business, Infor Thru-Put APS reveals new ways to do business better. With the clear view you get from Infor Thru-Put and a detailed model of your constraints, you'll be able to:

- **Plan faster**-You can calculate business planning scenarios in a single pass with Infor Thru-Put, to get your crucial questions answered quickly.
- **Keep your promises to customers**-There's no point making a plan you can't accomplish. Infor Thru-Put builds plans based on your real-world capabilities so that you can deliver what you promise when you promise it.
- **Change plans quickly**-Infor Thru-put rapidly calculates all available alternatives for filling a new order in the context of existing orders and selects the ones that optimize your overall plant capacity. When a major customer requests fast turnaround on a high-priority order, Infor Thru-Put can help you adjust the priority of other customer orders, while getting all orders completed profitably.

- **Test alternatives**-You can solve for multiple situations rapidly, thanks to the advanced scenario planning in Infor Thru-Put.
- **Think globally**-You can plan across multiple systems, both inside and outside your organization, with Infor Thru-Put for true global planning.

## Doing business better

There's no end in sight to the escalating speed and complexity you'll have to manage to stay competitive in manufacturing. The value of Infor Thru-Put's quick, comprehensive APS capabilities will only increase as product cycles accelerate, customers demand quicker service, and unexpected obstacles arise. Above all, Infor Thru-Put helps you make plans you can count on, so that you can keep demanding customers satisfied and stay competitive in your industry.



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