

Infor's Demand-Driven Approach to Production

PLANNING AND SCHEDULING
FOR MANUFACTURES

EXECUTIVE SUMMARY

For many manufacturers, business demands to simultaneously meet rising customer expectations and lower production costs are placing great stress on their current approach to planning and scheduling. Many executives at these companies have reached the conclusion that they can no longer effectively plan and control all the resources (men, machines, material and money) involved in the manufacturing process in today's complex and highly competitive business environment. They acknowledge that traditional planning and scheduling systems are outdated, lacking the speed and flexibility their companies need to become leaner, quicker, more agile and more competitive on cost.

With the realization that the status quo won't meet ever-rising customer expectations, manufacturers are forced to make a choice. They must choose to either improve their existing approach to planning and scheduling or implement an alternative solution that better reflects how they want to operate well into the future. The right approach varies from company to company. At Infor, we believe the right first step in every situation is to carefully analyze your business environment and how your current approach to planning and scheduling is stacking up to current requirements.

In this whitepaper, we will assess the state of today's planning and scheduling solutions and describe an Infor audit methodology manufacturing executives can implement to make sure their near-term decisions on planning and scheduling provide the long-term benefit they need for their companies to succeed in the new demand-driven business environment.

TABLE OF CONTENTS:	PAGE
The Origins of Production Planning and Scheduling	4
ERP Systems Address Planning and Scheduling, but with Limitations.....	5
Planning and Scheduling Requirements in the 21st Century	6
Infor’s Vision for Production Planning and Scheduling.....	8
Infor’s Business Audit Delivers on the Vision for Planning and Scheduling.....	9
Summary	11
Conclusion	12

THE ORIGINS OF PRODUCTION PLANNING AND SCHEDULING

Traditional planning and scheduling systems originated in the 1960s with the advent of Material Requirements Planning (MRP), which grew into Manufacturing Resource Planning (MRP II) and finally into Enterprise Resource Planning (ERP). In those days manufacturing environments were very different from today. With the planning and scheduling capabilities included in most ERP systems, manufacturers could meet business demands as they were then. Since then, ERP systems have been refined, but they are still based on the same concepts and iterative processes; the planning engine in an ERP system is essentially the same today as it was in the 1970s.

In an ERP system, a Master Production Schedule (MPS) is established by creating a fixed plan of proposed production orders to meet the expected demand represented by forecasts and customer orders. Using a technique known as Rough Cut Capacity Planning (RCCP), the MPS is validated against critical resources to create a plan considered achievable. The agreed-upon MPS is then exploded by MRP to create plans for manufacturing at all levels in the bill of material, and for purchasing raw materials and components. Once again there is an iterative process for validating that the entire manufacturing plan is achievable using Capacity Requirements Planning (CRP). It is only at the stage of CRP that the factory manager can assess the implications on manufacturing resources and determine if the plan is achievable. If the detailed manufacturing plan is acceptable, the planned orders are released into manufacturing and finally scheduled for production. If the detailed manufacturing plan is unachievable, the factory manager has to either deviate from the plan locally or request that the entire process be repeated.

Within ERP, the scheduling process is usually one of simply assigning priorities to orders and then leaving work center supervisors to decide which jobs to run and in which sequence.

ERP SYSTEMS ADDRESS PLANNING AND SCHEDULING, BUT WITH LIMITATIONS

ERP systems provide a framework for planning and execution, but have limitations that are well understood by users. These include:

- **Isolated Processes.** When MRP solutions were first developed, computers lacked the power to process enormous volumes of data and consider multiple variables at the same time. This necessitated separating processes such as material requirements planning, capacity requirements planning and scheduling.
- **Rudimentary Capacity Planning.** ERP systems are based on an assumption of infinite capacity. In both RCCP and CRP, capacity is assumed to be infinite. Material and capacity needs are not synchronized.
- **Lack of Automation.** Overcoming the rudimentary capacity planning and other shortcomings requires a heavy reliance on human involvement which is costly and creates the potential for errors.
- **Iterative and Slow Processes.** If resources are not available, manual changes have to be made in the MPS to reflect reality, and this requires all processing steps to be performed again, resulting in new “actions and exceptions.”

PLANNING AND SCHEDULING REQUIREMENTS IN THE 21ST CENTURY

The planning and scheduling functionality of years past no longer provides the responsiveness and agility businesses need to prevail in today's competitive, demand-driven environment. Today manufacturers must contend with globalization and meet steadily increasing customer demands for more choice, lower prices, faster delivery and higher quality.

Manufacturers are responding by moving increasingly to a make-to-order fulfillment strategy, in effect making the customer order the trigger for the entire supply chain and blurring the boundary between planning and execution.

As the world of manufacturing has moved on, new manufacturing concepts such as lean manufacturing, just-in-time, theory of constraints, agile manufacturing and demand-driven supply networks have arisen.

A "lean" manufacturing strategy is favored by many executives who see simplifying their manufacturing as the best response to changing customer requirements. The simplification brought about by "going lean" usually changes the requirements for planning and scheduling, but even the leanest operations still need to plan ahead and schedule production resources and associated activities.

Though most manufacturing executives know they must move to a new manufacturing model, they must ask themselves some very important questions before deciding their strategic direction:

- Can we extend the life of our traditional ERP planning process by improving its accuracy and the way in which we use it?
- Is there a way in which we can simplify or streamline our planning processes to be in line with a lean business philosophy?
- How can we implement an advanced planning system which can handle our global manufacturing scenario?
- How should we plan and schedule production to meet the ever more demanding service required by our customers?
- How can we plan and schedule production to reduce manufacturing costs by minimizing change-overs and idle time?
- How can we ensure we have the right resources in place exactly when we need them?

For many executives, the best response to these questions is to replace the traditional planning and scheduling functions in ERP systems with Advanced Planning and Scheduling (or APS) engines. APS can determine optimal plans and shop floor schedules in far less time than ERP, by making use of sophisticated computer algorithms which consider multiple constraints simultaneously. The constraints can often be configured and are usually comprised of the capacity and projected availability of machines, the skills and projected availability of personnel, the projected availability of tooling and material handling equipment, as well as the projected availability of the materials needed in manufacturing.

Whether a company is running an ERP system, an APS, or is using a simpler scheduling engine, it needs to have certain controls in place for its planning and scheduling to be completed accurately and to service the business.

In today's environment, properly servicing the business usually means 99% plus accuracy for the following:

- Inventory records
- Bills of Material
- Routing operation times
- Production rates
- Machine capacities
- Work center and machine availability by date and time
- Any other resource defined as critical

It is important to have clearly defined rules and processes for managing the planning and scheduling functions, as well as the timing of updates from demand planning and the feedback of current status from the shop floor. Rules for assigning priorities and handling exception situations and alerts are also needed.

INFOR'S VISION FOR PLANNING AND SCHEDULING

As a long-time leader in enterprise software solutions for manufacturers, Infor has deep insight into how planning and scheduling functionality has evolved over time and a vision for what companies will need in the future.

Building on an impressive track record in delivering solutions required in a wide variety of manufacturing scenarios, Infor offers state-of-the-art ERP software, which has been rated better than any competitive offering in the Gartner decision tool. Gartner decision tool – we should cite the exact report. The Infor solution portfolio extends beyond ERP to also include highly regarded supply chain planning and scheduling solutions, as well as software designed to enable lean manufacturing processes.

The strength of the Infor solution portfolio is validated by implementations at many of the world's leading manufacturing companies, including Boeing®, Rolls Royce® Marine and BAE™. Infor is delivering value to these companies and thousands of others by focusing on helping customers pick what's critical to their business, implementing it quickly and making it pay.

INFOR'S BUSINESS AUDIT DELIVERS ON THE VISION FOR PLANNING AND SCHEDULING

To help companies pick what's critical, Infor Business Consulting offers an audit facility to its customers. Aligned with the Infor Framework for Excellence, a structured approach for helping companies analyze their current business challenges and opportunities, Business Consulting Audit for Production Planning and Scheduling helps customers analyze the status of their current planning and scheduling approach and develop a strategic approach for the future. The business consulting audit provides customers with a well-defined process that:

Identifies Value Opportunities.

The methodology includes helping customers clearly identify the strategies for achieving the value opportunities of:

- Improving their ability to meet demand
- Improving their asset productivity
- Reducing their manufacturing and supply chain costs

Aligns with Value Strategies.

The business consulting audit aligns the value opportunities with the following value strategies:

- Increasing supply chain flexibility
- Increasing manufacturing process flexibility
- Increasing supply chain velocity
- Increasing the utilization of existing assets
- Increasing the capacity of existing assets

Develops Value Initiatives.

The audit will cascade to the value initiatives which are needed to execute the value strategies.

The value initiatives which can be considered in addressing the need to improve production planning and scheduling include:

- Reducing the time taken to develop material and capacity plans
- Increasing the re-planning frequency
- Improving material substitution alternatives
- Improving operation and routing alternatives
- Improving the scheduling of manufacturing resources
- Improving fill rates through constraint based planning and scheduling
- Maximizing throughput and minimizing cycle times through constraint-based planning and scheduling

Delivers Recommendations.

The audit offered by Infor Business Consulting is aimed at identifying the areas where changes or improvements should be made.

The report delivered as a result of the audit will include either:

- A recommendation for further study to investigate a particular area of the business before delivering a report with final recommendations

or

- Recommendations for process changes or improvements and solution implementation.

The recommendations made by Infor will be quantified in terms of improved business performance, using recommended key performance indicators (KPIs) and a return on investment projection.

SUMMARY

In summary, the Infor Business Consulting Audit process follows this format:



CONCLUSION

It's a given that no company in the manufacturing sector can stand still and maintain long-term competitiveness. At Infor, we understand this. We also understand that for every business there is a right way and a wrong way to move forward in their use of solutions. This requires decision-makers to get it right the first time. With the increasing pressure on manufacturers resulting from globalization and other competitive factors and the steady advances in software functionality, the right course of action is not always obvious. The SSA Business Consulting Audit is a vehicle designed to assist customers in making the right decisions for improving planning and scheduling and a range of other business processes. By helping executives understand how best to proceed, the audit assists customers in making the best use of Infor's leading-edge solutions.



www.infor.com

13560 Morris Road
Suite 4100
Alpharetta, GA 30004

678 393 5000 IPhone
678 393 5001 IFax

Copyright © 2001-2006 Infor Global Solutions and/or their affiliates or licensors. All rights reserved. The Infor word and design marks are trademarks and/or registered trademarks of Infor Global Solutions or one of its affiliates. All rights reserved. All other trademarks listed herein are the property of their respective owners.

INFWP_DDAGEENODD_0806-2