

## **When the Supply Chain Skips the Factory Floor, Manufacturers Can Only React to Events**

### ***Filling the Gap between Planning & Execution Allows Manufacturers to Anticipate Problems that Impact Customer Commitments***

**Tom Koski, CEO, nMetric**

It's a scenario played out in plant after plant. The customer has called, wondering if those 5,000 widgets on order could ship on Tuesday, a day earlier than planned.. According to the computer report, there are already 3,500 widgets in the warehouse and another 1,500 going through the production line, scheduled for completion on Monday afternoon. The salesperson is able to tell the customer with confidence that the new ship date is a done deal.

Or is it? What's known on the manufacturing floor is that Machine 2, which creates the flanges for the widgets is in need of maintenance, producing at only one-third capacity, something it started doing only this morning. The reality is that the shipment on Tuesday will be 500 short unless corrective measures are taken at once. However, since there is still enough capacity to meet the Wednesday order, the production line thinks all is fine. Nobody has told them different. The order will ship and maintenance will do repairs on Machine 2 later Wednesday afternoon.

Because of the simple fact that there is an IT system disconnect between planning and execution, a void called manufacturing, this company can only react to what is happening after the fact. There will be some firefighting at the very end to see what can be done, maybe checking with other customers to see if they can "borrow back" some units; there will be several meetings determining where to lay the blame. Bottom line, this company is going to needlessly risk disappointing a major customer.

If the system had known about the impending impact of Machine 2, a myriad of alternate solutions could have eliminated all the prospective stress. Machine 2 could run a couple hours overtime or Machine 1 could have picked up the slack. Sales could have checked if the customer needed all the units shipped on that one day. There could have

been an easy solution and nobody would have needed Pepto-Bismal to get them through Wednesday.

### **Visibility is needed on the factory floor**

Today, there is a gap in the supply chain between planning and execution. On the planning side, we have ERP/MRP, here is what we need to produce this order. On the execution side, we have MES and Logistics, here is how we will produce and deliver this order. Thus, decisions are made about delivering on time without really knowing what can be manufactured on time.

Unfortunately, neither planning nor execution takes into consideration the aforementioned maintenance upsets and scheduling problems or capacity constraints, tooling shortages, engineering changes and those other operational events that impact the timely completion of customer orders on the shop floor. As a result, the information received from traditional supply chain management (SCM) systems is inaccurate, because they are based on standards. Since they look backwards and are only periodically updated, we really don't know what is happening now. Such systems are also fixed. Order progress is not truly tracked nor can orders be rescheduled.

That's not good enough anymore. Management needs to raise the bar to a new level. It must integrate and coordinate the scheduling function with real-time tracking and updating of all resources, materials and capacity. Then, evolutionary scheduling could account for emerging conditions as time progresses and would additionally eliminate dependencies on predetermined standards. The company could implement multiple scheduling logic approaches, choosing among job-based, event-based, genetic algorithms or other modes.

Most importantly, in today's highly competitive market, management must be able to support capable-to-promise with ongoing automatic real-time adjustments to account for emerging conditions. Linking both sides of the present supply chain by filling in the present chasm with live scheduling, monitoring and tracking, messaging updates and analyses eliminates the extensive, yet ineffective, coordination now required when using loosely connected conventional multiple systems. Responsibility for all data on all execution levels would be single-sourced and configurable by the client on both macro and micro levels.

The 4C software solution from nMetric furnishes this link. It provides live, real-time, always-on scheduling of all operations and related events. Users track and monitor all resources used in production and order progression in real time. 4C fosters and delivers live communication within the company and among its partners through event driven messaging. Most importantly, manufacturers can now enjoy live capable-to-build analyses, instantly confirming their capability to produce a specific order delivery request or theoretically handle an increase in business. At last, companies truly have visibility into operations and up-to-date knowledge of individual order status in real time.

### **Proaction versus reaction yields major hard and soft benefits**

Plugging the gap between planning and execution, filling it with real time visibility and scheduling on the plant floor, is a major weapon in the battle to increase profits. When accelerating work and order flow, a company enjoys increased revenues. As operations visibility is improved, inventories drop. By optimizing manufacturing resources, a company enhances operational margins and delays capital investments. Compliance with design and quality standards leads to less scrap and waste.

Although such benefits are found in the general ledger numbers, the soft benefits of such a SCM system are as important. At last, everyone in the company who needs to know—management, sales, production, partners and, most of all, the customer—knows when an order will ship on time or be late, and know it ahead of time. To assure commitments are met, production hot-spots are located before the fact so that the factory can compensate.

Firefighting and miscommunication becomes a tactic of the past, a reprieve highly appreciated by the labor force. There is reduced chaos on the work floor, operators receive clear directions and priorities, and the company experiences reduced turnover and lower training costs.

Most importantly, the company enhances its reputation in its industry for providing value. Quality is consistent. This organization is lauded for delivering what is promised when it is promised. With confidence, it tells a customer what is possible, ...immediately upon request.

“Reaction” will be a word from its past.

***About the Author:*** Tom Koski is CEO of nMetric, a Costa Mesa, Calif.-based vendor of a Collaborative Scheduling and Execution suite called 4C that is based on a processing engine that provides event-driven scheduling, multi-site monitoring, intelligent messaging, and analytical capabilities.