



## ZAP THE ALARMS OR MANAGE THE FLOW?

Years ago, as the story goes, someone asked a material planner doing a Material Requirements Plan by hand, how long it took him to get done. The answer was, "I don't know. I've never been able to finish before a change comes along and I have to start over."

Although the power of computers was supposed to change all that, today the story is much the same. When does a production planner or supplier scheduler ever get to say, "That's it, I'm done"? The answer is probably "rarely" or "never" because the alert messages just keep coming out of the system to respond to rapidly changing customer demand, Engineering Changes, scrap, and all sorts of events which set off alarms in the software. "Event-based" planning is supposed to be the new way to go, but the way seems to lead to the intensive-care unit for stressed-out planners.

The irony is that managing all **material and capacity flows in a plant or in a supply chain** is done with **one standard format**. The Sales and Operations Plan, Master Production Schedule, Material Requirements Plan, Capacity Requirements Plan, and Input/Output Control all use the same standard format and logic, which closely resemble those of a bank account:

PART. N°: XYZ												
LEAD TIME : 4      SAFETY STK : 10      WEEKS												
		0	1	2	3	4	5	6	7	8	9	10
GROSS REQUIREMENTS			200		200	200		200		200	200	
			10	10	10	10	10	10	10	10	10	10
SCHED. RECEIPTS					400							
PROJ. AVAIL. BAL.	430	220	210	400	190	180	-30	370	360	150	-60	240
PLANNED      End								400			400	
ORDERS      Start			400			400						

That may not look much like a bank account, but let's look at the meaning of the lines:

Gross requirements are quantities planned to be withdrawn from stock each day (expenses)
Scheduled receipts are quantities planned to arrive on the date indicated (transfers on the way)
The projected available balance shows future inventory by day (how much is in the account)
When the balance goes negative, it means a shortage is coming (negative balance)
Planned orders show the suggested resupply plan by day to avoid the shortages (future deposits)

The basic logic is to schedule receipts (transfers on the way) and planned orders (future deposits) to allocate daily production capacity correctly (total personal wealth). Producing too early is wasteful because it creates inventory (money sitting in the account). Producing too late is bad because it creates a shortage (bounced checks).

Even the explosion of planned orders to generate gross requirements at the next lower level, corresponds to a future credit to the checking account creating a future debit from the savings account. The planned order lead time corresponds to the lapse of time between giving the transfer order (start date) and the arrival of the money in the checking account (end date).

This deceptively simple format, confirmed by the experience of tens of thousands of companies over the years, contains all the information required by a planner to understand what's going on:

Managing material and capacity flow in this way beats having alerts or alarms like RED: excess inventory or YELLOW: parameter violation. Not only do alarms give very little info, but several alarms can refer to the same basic event. Correct the basic problem (a scheduled receipt arriving too soon) and several messages disappear (excess inventory and parameter violation). But you have to understand first what the basic problem is in order to correct it.

Sometimes the alarm approach is worse. One company had to add 4 people to analyze the alerts created by their new software. With the older, simpler software, they obtained exactly the same production and supplier performance with 4 less people. Another company lost control of its inventory record accuracy; there were so many alerts that no one could figure out what the true situation was.

**In a Lean Supply Chain**, with Kanban call-offs, the standard format works just as well even though the planned orders are not released, because if they were the shop orders would push production and with Lean the Kanban pulls it. Here the standard format may be interpreted as follows:

Gross requirements are quantities planned to be pulled from the cell by the next step in the process Scheduled receipts or shop orders don't exist any more, lead times being very short The projected available balance shows future inventory by day at the end of the cell When the balance goes negative, those quantities will have to be produced by the cell Planned orders show the quantity of the item planned to be pulled into the cell by future Kanbans
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For suppliers, the standard format is usually simplified to facilitate communication and improve readability. Only the planned-order line for each item is given. All items of a family are shown on one page or screen: items vertically and weeks horizontally. If the supplier delivers by cases of 10, each planned order of 10 represents one Kanban signal. If Week One shows 200, the supplier knows he will be receiving 20 Kanbans. (See our Technical Newsletter No. 31, available at no charge).

For Vendor Managed Inventory, the supplier needs to see the full standard format since he is managing the procurement flow for his customer.

**In logistics and distribution**, the standard format is every bit as useful. Product availability in central stocking locations, on logistic platforms, at wholesalers and at retailers is all shown using the same format, along with the logistic flow, present and future. The standard format in this case is:

Gross requirements are forecasted (or calculated) daily sales from the platform Scheduled receipts are quantities in transit, planned to arrive on the date indicated The projected available balance shows future inventory by day on the platform When the balance goes negative, it means a stockout will occur Planned orders show the suggested resupply plan by day to avoid stockouts
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All companies should want to do Lean to lower resource waste and preserve employment. The standard format offers what Lean doesn't have: visibility of future events and facilitates using Lean. Anticipation precedes Acceleration.