June 5, 2008

DBMEXECUTIVE

ISSUE 1.6

DBMExecutive is a monthly newsletter created by DBM Systems Inc., a supply chain consulting group located in Cambridge, Ontario, Canada. To get your own copy please visit us at www.dbmsys.com.

Mistakes were made but not by me
Accountability mapping in the Supply Chain

by Duncan McLeod

President's Note…

This month DBMEXECUTIVE looks at accountability, and how such a definable word has become lost in the hot potato game of inventory accuracy. I recount my past experiences with accountability, and then walk them through today's more sophisticated systems.

Also this month, Doug tackles the hardest question about S&OP. What's in S&OP for sales and marketing?

I took my first solo flight when I was seventeen years old. I sat alone in the left seat, no instructor to correct my mistakes or tell me what to do. It was just me. If I screwed up it would be my fault, and I would literally suffer the consequences.

It was a great experience because for the first time in my life I was completely responsible. I alone was accountable for the outcome of the flight which, by the way, was successful.

Clearly defined accountabilities are one reason our aviation system runs at seven sigma. As I highlighted in my last article, it is also one of the basic requirements for inventory accuracy.

In this article I will dive a little deeper into the accountability structure required for inventory accuracy.

> "I believe that accountability should be based on geography or the plant layout."

In the Beginning, there were Cards

Accountability has always been with us.

In the old days, before on-line computer systems, we kept our inventory records in a card tub that was like a filing system on wheels.

Each part number had a green inventory card. Receipts and issues were posted to the card, and a running balance was maintained. It was someone's job to look after the card tub. Transaction documents were delivered to this person, and she would post them to the cards. We called this job an inventory clerk, or just inventory control, and she was responsible for maintaining the inventory records.

If the transactions looked strange or were illegible, inventory control checked with the source and straightened the balance out. This person took ownership of the on-hand balances on the cards. The responsibility was pretty clear.

As we moved into the computer age, transactions were posted on-line at the source, and the computer maintained the on-hand balance. Everyone was supposed to do their transactions but nobody owned the on-hand balance anymore. Inventory control took on other jobs and responsibilities whch didn't include card balances.

As a result errors accumulated and in many cases, the computer based inventory records were garbage. In fact, I have seen cases where more than 70% of the on-hand balances in the computer system were wrong. Try running a seven sigma supply chain with that type of data!

The problem is we lost accountability. When we moved from the card tub to the computer, we forgot to carry the balance responsibility to inventory control. People may have accountability for transactions but nobody owns the on-hand balance. We just assumed that the system would look after it.

The Problem with Assuming

The first time I confronted this issue was back in the late 70's. I had moved out of the materials department to assume leadership of our new MRP project. It was also our first real exposure to on-line computing.

For those of you that weren't around in those days it was an even bigger deal than my first colour TV!

After some preliminary education I figured out that MRP was not going to work without inventory accuracy, and I wasn't going to get inventory accuracy without clearly defined accountabilities.

So I looked into how we managed inventory accuracy accountability. This is what I found:

- The inventory cards (manual system) were maintained by a clerk reporting to the materials manager.
- Purchase receipts into our plant were recorded by the receiver and then forwarded to the inventory clerk. The receiver worked for the shipper who worked for the materials manager.
- Issues of component material to manufacturing were recorded on the daily production reports. These were completed by production line leaders, who reported to the production superintendent, who reported to the plant manager.
- Receipts of manufactured product were recorded on the same daily production reports and completed by the production line leaders.
- The inventory records for raw materials stored at off-site processors were maintained by our cost accountant, who reported to the comptroller.
- Shipments were based on the packing slips, completed by the shipper, who worked for the materials manager.
- Receipts to our remote distribution warehouses were based on the shipments from the plant, documented by the shipper who reported to the materials manager.
- Shipments from the remote distribution warehouses were processed by the warehouse shipper, who reported to the regional sales manager, who reported to the president.
- Nobody was quite sure how any miscellaneous transactions such as scrap, customer returns, samples etc. were processed.
- Moving up through the organization, the plant manager and the materials manager reported to the general manager, who reported to the president. The comptroller and the regional sales managers reported directly to the president.

It was clear to me from my initial review of our accountability map that the president was the lowest common denominator for inventory accuracy.

It was also clear that he was not the guy who was going to focus on making inventory accuracy work. The accountabilities had to change.

History Repeats Itself

That past example might seem a bit extreme but it is what I faced in 1978. I would not have been successful in my new position if I didn't change the accountabilty structure.

Now, 30 years later, I probably see 25 new plants per year. More often than not I see an accountability map that looks like this:

- The receiver is responsible for purchase receipts.
- The picker is responsible for reporting the issue of major components to production, or they may even be backflushed.
- Production is responsible for reporting the receipt of manufactured parts, often as a direct result of production reporting.
- Minor components are backflushed or automatically issued based on the production report and the bills of material.
- Production is supposed to report scrap and all of the components consumed by the scrapped parts.
- Engineering and other indirect users are supposed to report all of their inventory movements.
- The shipper is responsible for processing all sales transactions.

This a better structure than I had back in 1978, but it is still not right. The same problem exists—no one is accountable for the accuracy of the on-hand balances.

If you don't have a clear accountability map for inventory accuracy then you will never achieve it. It is that simple.

Tomorrow into the Future

I believe that accountability should be based on geography or the plant layout. Not on a single person in the materials department. Here is a typical accountability map for a repetitive manufacturer:

1. The accuracy of raw material and purchase parts is the responsibility of the receiver. To support this accountability the receiver posts all transactions in and out of the raw material storage area (geographic accountability). This includes all receipts from vendors, issues to production and returns from production, as well as any miscellaneous transactions. If there is an error in this inventory the receiver owns it.
2. The accuracy of the finished goods is the responsibility of the shipper (could be a finished goods warehouse manager or any other person who has geographic accountability for the area finished goods are kept in). To support this accountability all of the transactions in and out of the finished goods inventory area are controlled by this person.
3. Intermediate and sub-assembled components not located at a production center are the responsibility of the sub-assembly inventory person. If these parts are in multiple locations then there may be different people responsible for each location. Again this person must have control of all of the transactions going in and out of this inventory.
4. The accuracy of the inventory at a production cell or work center should be the accountability of the production supervisior at that work center. This person must have control of all transactions related to the work center, including the receipt of components from raw material or sub-assembly stock into the work center location, the receipt of complete manufactured parts into a finished location in the work center, and the reporting of scrap and the reconciliation of on-hand balances.

Typically, the first three areas report through the materials department. The last area, the production work cell, reports through the production department. The key is that the ownership for accuracy in this example is clearly defined.

Obviously to make a geographic inventory system work, you must track inventory by physical location. If the same part is in multiple locations, there may be multiple people responsible for its accuracy. If you cannot identify what inventory is in what location, then you will not be able to hold anyone accountable.

Accountable, accurate inventory. If you can't get it with your current structure, you need to make some changes. Let people know their respsonsibilities.

When I am a pilot I'm accountable for the execution of the flight. There is no ambiguity. I accept that accountability every time I fly, and I would not have it any other way.

In a future article, one of my long time associates will cover best practices for maintaining accurate inventory in a production work cell.

Next month, however, we will discuss vendor schedule attainment within the supply chain.

Duncan McLeod, MBA, CFPIM, CSCP, PMP, is the President and CEO of DBM Systems Inc. in Cambridge, Ontario, Canada, where his consulting and research focus on management strategy in fast-paced industries. Duncan can be reached at dbmexecutive@dbmsys.com.

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It's Only Words

S&OP and the role of Sales and Marketing

by Doug Dedman

I have a confession to make. I lied. Last month, when Morgan wrote his article on teamwork, and how it helps to make change happen in an organization, I told him my next article would be about digging deeper into the self assessment and the importance of getting it validated. So he wrote that into the end of his article.

Well, this article is not about that.

So if you were looking for that information in this article you should stop reading now.

However, you can still read on, and I encourage it, because what I am going to discuss is just as important: why should sales and marketing care about the Sales and Operations Planning process?

The interest in this topic stems from the questions I've been getting lately about S&OP and sales and marketing, and I do understand why those questions are there.

After all, what's in it for sales and marketing? It's a question that is worth answering, so I will dedicate this month's article to do just that. All lies aside.

Defining the Roles

Many organizations start S&OP from a purely operational perspective. In fact, if you go back to the roots of S&OP, it was created to be a process that authorized the master schedule.

The rules of S&OP were such that the production plan was agreed on, and signed off by, the senior executive. The plan was set for the month, and IT COULD NOT BE CHANGED. Not without executive approval anyway. Think about what this meant to sales.

Who would most likely want to change the master schedule? Sales. This makes sense. Most of the variability that is introduced into our planning process comes from our customers. In some ways S&OP became a process that protected the master scheduler (operations) from the variability introduced from sales and marketing.

But that's not all.

The Language Instinct: Marketing

Sometimes the language we use when talking about S&OP doesn't help to include sales and marketing either. I know I'm guilty of this as well. In operations, we push the idea of forecast accuracy as one of the key measurements in S&OP, and rightly so.

We say, "If sales could just generate an accurate forecast, production will have product available when the customer orders it. Make that forecast accurate for as long a horizon as possible, and everyone will be happy."

If we know what the customer is going to buy well ahead of time, we can stabilize the production plan, stabilize the inventory plan, and stabilize the master schedule. In the end we argue that this will improve customer service levels— that is what's in it for sales we say.

This is true, but there is much more to S&OP than that. Think about how we go to market with our products.

The role of marketing is to figure out how to position our product or service so that we can beat the competition. The concern is around the 4 P's; Product, Price, Place and Promotion, and all the constraints around them. Everything we do in marketing is related to how the customer perceives our product or brand, and what we can do to make them choose our product over another.

> " Most of the variability that is introduced into our planning process comes from our customers"

It's not just about having the product available when we need it. For marketing, that's just the start, just a given.

The Language Instinct: Sales

From a sales perspective we are concerned with winning the order. That's what we do.

It comes down to more tangible benefits to the customer. Lead time (how quickly can the customer get the product or service), quality, service, and product performance, are all part of winning an order.

In my farming vernacular, marketing prepares the soil and plants the seed, but sales needs to look after the plants and harvest the crop. Despite what some may think, these tasks don't just happen by chance. If only we could get the delivery side of the organization to understand what it takes to harvest the crop.

Harvesting the Crop

The overall benefit of S&OP is aligning operations and supply chain with our sales and marketing plans. Too often we see this the other way around. We focus on cost reductions.

Activities such as lean manufacturing and inventory reduction programs are both focused on how to remove the non-value-add costs from our processes. This is all good work, and necessary work, but at the end of the day we need to look at who pays the bills. The customer. If they aren't happy, it doesn't matter how lean we are.

So how does S&OP help us do this? Three ways. First, S&OP forces you to look at the business by product families. Second, it provides a forum for discussion and decision making that involves the whole organization. Third, it establishes a common set of language to improve communication.

We will look at each of these in more detail, and look at some specific examples of how this helps us in sales and marketing.

Product Families

The S&OP process is managed in product families. A product family is a grouping of end items that has a common set of characteristics.

For example, if you were a soft drink bottling company, you may divide your families by the type of packaging: cans, single serving bottles, one litre bottles, and fountain drinks. These families all have different demand characteristics, but also have different production constraints.

The family differentiators may not always line up between sales and operations needs. Choosing the families can be difficult, but is a necessary step in making S&OP work.

One of the things that I always look for during the S&OP meeting is that information is presented by family. An important part of this presentation is the family business strategy.

Here are two points in that strategy:

- **Target inventory or backlog for family.** This is based on the market conditions for that family. In a market requiring short lead-times to win the business, I would expect the target order backlog number to be low or the inventory number higher to allow for fluctuation in customer demand.
- **Key competitive advantage.** What is your "order winner"? When stacked up against your competition in the market place, why does the customer choose your product over your competitors?

The reality is that these conditions will be different for your different product families. Yet too often we have set policies regarding inventory and lead-time on a one size fits all basis.

In the end this can hurt us as we go to market for a family. If reducing lead-time will increase market share for a family, what is the best way to execute that? Is our operation aligned to win the business?

Nomenclature for all

This is a pompous way of saying we agree on what we are going to call things, and we call it that name.

The problem though is that operations doesn't always understand sales, even after the agreement.

When sales talks about a sale they may be talking about bookings or an order, while operations tends to think of sales as a delivery. Both are important, and the team needs everyone to understand what is being talked about.

How can we be held responsible for shipments when they are a combination of sales and delivery? If we don't meet our targets, either we had the order and couldn't ship it, or we didn't have the order and couldn't make it!

Language can cause confusion, but it can also be responsible for understanding. Get your team in the habit of asking for clarification, of making sure everyone understands.

Forum for Discussion and Decision Making

The S&OP monthly process is there to allow sales and marketing to develop their demand plan, and operations to develop an operational plan. The important part happens after this is done.

The two areas come together in the pre-S&OP meeting to work through the differences. The decisions made there, along with the decisions that still need to be made to resolve differences, are then taken to the S&OP meeting. This is where the plan is finalized.

S&OP meetings must be open exchanges for the benefit of the organization. Personal agendas must be kept in check.

As Morgan discussed in the last article, teams that understand the personal dynamics of its members are better prepared to deal with conflict.

Representation from all departments is crucial for buy-in. The S&OP meeting must be properly facilitated so that everyone has a voice. Sounds obvious, but my experience shows that it never is.

Postscript to S&OP

The best way to think about the advantages of S&OP from sales and marketing is to consider new product introductions.

We come up with a new product that we think will work well in the market place. Marketing is tasked with going out and creating some "buzz" around the product. Sales goes out and starts to take orders. What happens when it's time to deliver?

New product introductions are difficult because all of our operational measurements tend to be financial. Focused on the past. With new product introductions we need to reallocate resources to focus on the future, something we may not have done before.

Sales and marketing can paint a picture of what the future will look like through forecasts and projections. Operations, the present. Accounting, the past.

We need them all for S&OP to work. Not a word of a lie, cross my heart.

Doug Dedman, MBA, PMP, CPIM, is a senior Business Consultant with DBM Systems Inc. in Cambridge, Ontario, Canada. Doug consults with global, multi-divisional organizations with a focus on S&OP and supply chain execution. Doug can be reached at dbmexecutive@dbmsys.com.

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