
Driving the Frustration out of Demand Planning

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In retail, creating operational forecasts for replenishment is no small task. Many retailers sell thousands of items that run the gamut of complexity: in addition to the “bread and butter” products, some are highly promoted, some slow moving, some weather dependent and yet others have short lifecycles in the assortment or marketplace. Trying to produce accurate predictions of the future while keeping the day-to-day supply exceptions under control can be daunting. While there’s no secret formula for predicting the future, the best practices outlined in this paper will ensure that your demand planning process is adaptive, responsive and viewed as an asset – not a burden – to your organization.

A Brave New World: Retail Time-Phased Planning

Although time-phased planning has been standard practice in manufacturing companies for decades, it is just now gaining acceptance in retail, largely due to advances in computing power that now make such a large problem solvable. Probably the greatest single difference between the reorder point environment of old and time-phased planning is the purpose of the demand planning process. While it’s true that both reorder point and time-phased planning processes require projections to work, the demand planning process has a much larger role to play in time-phased planning.

In a reorder point world, a forecast is used primarily to predict demand over a lead-time out and suggest order quantities. In most cases, this forecast would have been created by a “black box” and the planner would accept the order suggestion, reject it or modify it at the time the order is being created. Promotions would have different lead-time assumptions and would often be locked in further in advance with a manual order.

In a time-phased planning world, the demand forecast is a comprehensive view of demand that extends 52 weeks into the future. Unlike “the black box” forecasts of the past, planners interact with their forecasts regularly. In addition to planning replenishment, the demand forecast also drives all supply chain planning activities through shared visibility with distribution centres, suppliers and transportation. Given the elevated status of the demand forecast in time-phased planning, it’s more important than ever to ensure that forecasts are your first thought, not merely an afterthought.

The remainder of this paper outlines four “best practices” that can make your demand planning process more effective than you ever thought possible.



1. Keep Your Demand Forecasts Up-to-Date

Reverting back to the reorder point world for a moment, it's easy to understand why keeping an up-to-date forecast wasn't of paramount importance. After all, once the order has been created, the forecast has done its job. If things start to change quickly, there's no point in changing the forecast because you're within the lead-time. Your only option is to change the order quantity or attempt to expedite. If things do go according to plan, you won't need to take any action until the item comes up for order review again, at which time you'll just be accepting or rejecting the resulting order quantities anyway.

Contrast this with a time-phased planning environment. Ideally, there is no order review. The system is constantly re-calibrating itself and making necessary adjustments on a daily basis. Put another way, the system automatically conducts an order review for every item every day. In addition, the demand forecast is used to plan activities well beyond the lead-time – changes that are happening today will affect the entire planning horizon. Because the forecast has a greater purpose than just making order suggestions, the ordering lead-time is irrelevant in the demand planning process. And while it may be too late for a forecast change within the lead-time to impact purchase orders that are in transit, the entire forecast horizon should be managed the same way to protect the integrity of the entire plan.

2. Use the Operational Forecast to Validate the Sales Plan

Few people will dispute the value of having a sales plan. It's a great tool for focusing and motivating marketing efforts to achieve a goal. Although a lot of work and analysis goes into formulating this plan, it must be recognized that the assumptions that went into its creation become more outdated with each passing week.

By contrast, the 52-week operational forecast is constantly updated with new information from the market at item level. This gives the marketing department an unprecedented ability to directly compare the operational forecast (rather than just history) to the budget. Variances can be continually tracked to identify root causes and take action to get the plan back on track: Which of the original budget assumptions aren't coming true? Do I need to schedule more promotions for a category or beef up the assortment in another? The decisions made would feed back into the operational demand planning process (in the form of promotional or new item forecasts, for example) and cycle through again.

While it may be tempting to want to stick with the original plan, it's always a wise practice to defer to the most recent information from the market. Hoping for the plan to come true is not really a strategy. By always using up-to-date information



to make course corrections, the sales plan has a greater chance of becoming a reality.

3. Measure the Process, Not the People

While it's important to measure the output of any process, how you use these measures is even more important. A common misconception is that the best path to forecast accuracy is to make demand planners accountable for it. While accountability is a key ingredient for improving any process, you have to make sure that people are only held accountable for things that are within their scope of control.

If you think about most supply chain activities, with some concerted effort, near-perfection is an attainable goal. Think of inventory record accuracy, data accuracy, on-time delivery – with the exception of unusual circumstances, these things are largely controlled within the process. The only failures that can't be weeded out through root cause analysis and procedural change are those things that are completely unavoidable. As a result, the processes that produce these outputs can reach for specific goals (98% bin-level accuracy, 95% perfect orders, 95% on-time delivery) and failures can easily be traced back to find the root cause.

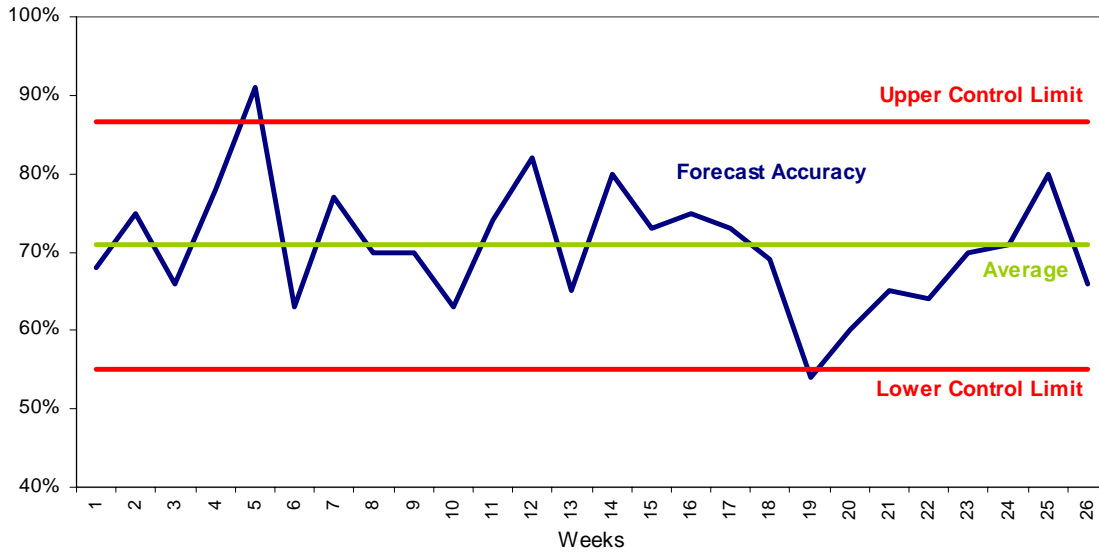
Contrast this to the demand planning process – to achieve a perfect result would require predicting the future with 100% accuracy by item by week. While several factors that influence demand can be internally controlled (e.g. pricing, promotion strategy, market penetration), there are countless others that can't (e.g. weather, geopolitical events, consumer sentiment and plain ol' randomness!). With so many uncontrollable influences, successful demand planning is not so much about trying to achieve a particular goal for accuracy as it is about:

- Understanding and managing the things you can control to try to produce a better result and;
- Reacting quickly when one of the uncontrollable influences takes you by surprise

Perhaps a better way to think of measuring (and, by extension, improving) the demand planning process is within the scope of the methods of statistical process control, pioneered by management guru W. Edwards Deming. In the simple example depicted below, the demand planning process yielded forecast accuracy observations as depicted by the dark purple line over a 26-week time period:



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By using straightforward statistical analysis, we can determine that the forecasting process will produce an average accuracy level of 71% and that 95% of the time, the accuracy will be between 55% (the lower control limit) and 87% (the upper control limit). So long as the demand planning process remains the same, you can expect these normal variations between the control limits to continue.

The next step is to figure out which process flows within the demand planning process may be creating the variation in the process. In retail, for example, forecasts may be produced using several methods, each of which require different steps and produce different results with respect to accuracy:

Item Grouping	Forecast Method
“Bread and Butter” items	Forecast statistically using historical demand and exception management
Items on promotion	Collaborate with advertising to develop promotion forecast using past promotions as a guide
New items	Collaborate with category manager to determine ramp-up profile and average selling rate

Performing a similar analysis for each different forecasting method will help to show you which processes need attention to achieve a better overall result. For example, if it is determined that the method for forecasting new items is contributing to the bulk of the inaccuracy and variability, how can the new item forecasting process be changed to produce a better result? Has the supplier done a market analysis of which you can take advantage? Can you gain some insight from your customers, perhaps through a simple informal survey or market test? Would it be valuable to look at other product categories that have had products added recently?



After making some changes to the process, you can continue to observe using the statistical process control graph. If results improve and/or the control limits tighten over time, you'll know you're on the right track. If not, you go back to the drawing board and try something else. Over time, you may realize that the improvements you made to the process for forecasting new items has improved it to the point that other methods are contributing more to overall inaccuracy... and the cycle continues.

It has often been said that “the definition of insanity is doing same thing over and over, but expecting a different result.” By using forecast measurement as a catalyst for continually improving the process, you will ensure that your efforts will bear fruit.

Q: I can understand why it's impractical to have an absolute goal for forecast accuracy, but why wouldn't I benchmark against my competitors?

Many companies spend a great deal of time and effort researching the forecast performance of their competition. While this exercise may be an interesting one, it may not give very much insight into the most important question:

Why?

The fact is that no two companies, no matter how similar they may be, have identical processes or business models – and most are reluctant to share the inner workings of their operation with competitors. Since you can't control your competitors' actions any more than you can control the weather, it's probably more beneficial to keep your eyes turned inward, constantly searching for things that you can do to make your processes more efficient.

4. Divide Demand and Supply Planning Responsibilities

The conventional wisdom tells us that to maintain accountability for supply chain performance, a single person should perform both the forecasting and replenishment responsibilities for each item. Again, in a reorder point environment, this made quite a bit of sense – the forecasting process was a very simplistic “black box” and it's only purpose was to suggest orders, which the planner would then accept, reject or modify. Such is not the case, however, in a time-phased planning environment, where the demand planning process is the foundation for planning across the entire supply chain. The elevated status of the demand planning process as the basis for planning inventory, transportation, purchasing, capacity, manpower and cash flow is the reason why the assumptions of the conventional wisdom no longer apply.



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If you think in terms of connected business processes, the demand planning process produces an item level demand forecast as output. This output feeds the replenishment planning process as input to schedule supply. So long as each supply chain process is executed properly to produce its expected output, the division of responsibility (that is, *who* is performing which tasks) is not as important. The key is to make sure that the division of responsibility you choose doesn't adversely affect the process output.

"The greatest improvement in the productive powers of labour, and the greater part of the skill, dexterity, and judgment with which it is any where directed, or applied, seem to have been the effects of the division of labour."

Adam Smith

This was the opening sentence of *The Wealth of Nations*, Smith's 900-page manifesto on classical economic theory, originally published in 1776. In it, he went on to describe how division of labour could greatly increase productivity and quality in the manufacture of sewing pins.

Over 135 years later, Henry Ford applied Smith's lessons on the economies of scope through specialization to the manufacture of automobiles. Prior to 1913, cars were assembled by hand using a very specialized and expensive workforce. This was akin to having "full accountability" for the final product, but it took an average of 14 man-hours to build a single chassis. When the world's first auto assembly line opened in Highland Park, Michigan, it only took 2 man-hours (with the added bonus of a significant drop in defects). These enormous leaps in efficiency and quality were achieved by nothing but a simple change in division of responsibility. By breaking down the job of assembling a car into its component tasks, Ford was better able to utilize the skills and talents of its workforce.

The division of labour concept is hardly new. It is an enduring truth that can be applied to any business process, including supply chain planning. If we accept the examples set by Adam Smith and Henry Ford that "single person accountability" is not necessarily the path to output quality, then we would naturally break down the process into executable steps based on the skills and responsibilities required. In this way, the skill sets of your people can be more closely matched to the requirements of each process. This is now truer than ever, given the newfound importance of the demand planning process in the supply chain.

Depicted in the table below are some sample characteristics of demand planning activities and supply planning activities required to execute successful retail time-phased planning:



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Attribute	Demand Planner	Supply Planner
Skills/Talents	<ul style="list-style-type: none">• Understands customer behaviour• Deductive reasoning• Creative problem-solving with incomplete information	<ul style="list-style-type: none">• Methodical analysis• Trace-back problem solving• Strong bent toward efficiency and service
Responsibilities	<ul style="list-style-type: none">• Create item forecasts• Market research• Demand trend analysis• Promotional impact forecasting• New item forecasting	<ul style="list-style-type: none">• Create item supply schedules• Expediting• Inventory analysis• MOQ/stocking strategy• Network analysis
Business Relationships	<ul style="list-style-type: none">• Retail Stores• Customers• Marketing/Advertising departments	<ul style="list-style-type: none">• Suppliers• Physical Operations

While it is not impossible to hire and retain candidates that have the full complement of attributes, it is certainly more difficult than identifying specialists for each discipline. More often than not, the impracticality of finding people with all of the attributes required to execute both processes leads companies to compromise on execution, rather than to apply the lessons of Adam Smith and Henry Ford.

Summary

With the advent of time-phased planning in retail, the demand planning process needs to be much more robust to provide supply chain-wide visibility. No longer is the item level operational demand forecast used to simply order product – suppliers, capacity planning, manpower planning and financial planning functions all increasingly rely on these numbers to perform efficiently.

The rules of the past no longer apply. Trying to “force fit” the assumptions of reorder point replenishment into the brave new world of time-phased supply chain planning is a recipe for frustration and sub-par results.

Much of this frustration can be reduced, if not eliminated, by dropping a few no-longer-valid beliefs and adopting some new best practices in your supply chain planning area:

1. Keep your forecasts up-to-date – No longer should you be concerned only about the next order. You’re planning a 52-week continuum of demand, so every number is important.
2. Use the operational forecast to validate the sales plan, not vice-versa.
3. Adopt process-focused (rather than person-focused) measurement. Encourage and establish root cause analysis as a way of life in your planning group.



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4. Achieve benefits of specialization by dividing responsibility in your planning group between demand planning and supply planning.

Remember: Everything is downstream of the forecast. By recognizing the importance of the demand planning process to the supply chain and doing what's necessary to make it successful in its own right, you can reduce frustration not only for your planning group, but for the entire supply chain.[†]

[†] About Demand Clarity: Demand Clarity Inc. is a focused consulting firm whose mandate is to simplify supply chain planning. For more information on this topic or others, please phone us toll free at 1-877-877-9769, send an email to info@demandclarity.com, or visit us on the web at www.demandclarity.com.

