

Q WHITE PAPER //

10 STEPS TO ALLOCATE MORE PROFITABLY

Allocation is one of the most under invested in and overlooked areas to optimize retail and gain profit margin. Greg Wilson, VP of Field Strategy at Quantum Retail will describe successful strategies to help you extract profit, understand your customers and achieve efficient and strategic allocation execution.

QUANTUM RETAIL TECHNOLOGY



10 STEPS TO ALLOCATE MORE PROFITABLY

WHITE PAPER//

INTRODUCTION



“With all of the hype around new technologies, it’s easy for Retailers to overlook how rethinking their approach to Allocation can dramatically impact profitability - and its value in dealing with an array of new scenarios resulting from today’s client driven retail environments.”

Greg Wilson

Vice President Field Strategy, Quantum Retail

ALLOCATION- YOUR BEST OPPORTUNITY TO IMPROVE REVENUE AND PROFIT

With the changes in consumer’s behavior and the pace of retail accelerating all the time, it’s become more challenging to get the products customers are looking for into the right locations. What can retailers do to improve ability to meet the expectations of customers optimally in such a dynamic environment? Merchants in larger retailers go through a series of product activities in the process of fulfilling their customers’ expectations.

THESE INCLUDE:

1. Selecting Product
2. Ordering Product
3. Allocating Product

Which of these three processes can provide the greatest return?

Flawed assumptions

Selecting product is often the first area retailers assume deserves primary focus. This is usually due to the fact that it’s generally the starting point in the retail lifecycle and selecting good products is a key factor in success. *Ordering* the right quantity typically follows when using process sequence / time-line based logic. Unfortunately, the *allocation* of product to stores is often relegated to being the last area given attention. However, this critical component of success is imperative and when it is overlooked, retailers risk failing even when everything else is right. As one retailer recently said to me **“A bad allocation can (and often does) destroy a good buy”**.

A significant impact on store and product performance

Allocating product is our last chance to impact what our customer has to choose from. When we're making allocation decisions we're making as many decisions as we have stores, for every receipt of every SKU that's carried. That means hundreds, or thousands of decisions per product, each of which can have a significant impact on how well products and stores perform.

Get these decisions right and you can maximize returns for good products and reduce the pain of the inevitable poor products. Get them wrong and you can stifle the potential of good products and turn poor products into devastating losses. So why do most retailers have their least seasoned personnel managing the allocation process that is so critical to their success?

Get the most out of your merchandise

Unlike the heavily artistic activity of product selection, allocation decisions are one of the best points to leverage data and apply analysis to getting the most out of your merchandise and stores. Better understanding of product, location and ultimately customer behavior is an invaluable foundation to support improvements not only in allocation, but also in ordering and assortment decisions as well.

There are multiple decision points that can be improved upon in allocation:

Traditional allocation systems allow you to select a base of historical data to use as either a foundation of allocating, or to create a plan to allocate into. Allocators select the products, locations and times to consider. They also choose calculations to apply and constraints to impose. They then review system-generated results and make changes. Each of these process steps and related decision points can be improved upon in any environment. In the following pages we'll deconstruct this process and identify where the opportunities are to improve on traditional allocation approaches.

1. DEMAND THE USE OF DEMAND



The conventional allocation process allows you to select a base of historical data as a foundation of allocating, or to create a plan to allocate into. The assumption is that the data will reflect the way products behaved in those stores and that the pattern will repeat itself.

The true objective is to as much profit and revenue with the allocated product in a given location as possible. Unfortunately historical sales fail to represent true potential. This is because sales have been limited by the amount of inventory a store received. When a customer wants to buy an item and it's not there, it's a lost sale. We typically refer to the customers' expectation as demand. The difference between demand and actual sales is lost sales.

If we are to do a better job of fulfilling the customer expectations, we have to allocate to demand rather than sales. If we don't, we're invariably creating self-fulfilling prophecies. If sales are less than demand we'll only fill back to sales potential rather than true demand potential.

We'll never capture the demand. The result... missed opportunities!

WHAT YOU CAN DO NOW

The key to understanding demand is accounting for situations where demand is missed. When products run out of stock there is exposure to missing sales opportunity. Short of creating complex logic to accurately assess missed opportunities, some pre-analysis of your data may lead to quick improvements.

When selecting your base of history, take a look at situations where stores reached 0 inventories. If you're looking at a group of items, look for unexpectedly low store level inventories. Limit the time period you're referencing to a range where low or out of stock situations haven't had a chance to become relevant. While you may miss some trending by doing this, you'll almost always improve the understanding of relative store selling and thus improve your allocation results.

A BETTER WAY

If you're considering investing in new allocation capabilities, insist on – no ***demand***, demand! Without understanding demand you'll consistently miss opportunities to improve your allocation results and therefore your company's results.

All demand is not created equal. If an incorrect plan or forecast is used to derive demand when you have stock out situations, the result can be even worse than not using demand at all! The best modern allocation systems have the ability to not only derive demand, but to evaluate the quality of the available data across multiple dimensions of merchandise and location using the most current data BEFORE using it to derive demand.

2. WILL BETTER CLUSTERING IMPROVE ALLOCATION?



Location clusters. We all know them and many love them. They have their place, especially in larger retail organizations. But it's important to think about why they exist before determining when and how to utilize them.

For the most part they only exist to allow merchants to look at data in a way that reflects some localized perspective, but makes it more manageable than evaluating each individual location. This is fine for review purposes, but when it comes time for execution, we need to consider the uniqueness of each individual location.

TWO REASONS THAT THE TRADITIONAL USE OF CLUSTERS IS OFTEN INEFFECTIVE

First – Cluster definitions must be created. To keep this process manageable aggregate levels of are used. This process involves making assumptions about what products will behave similarly and typically forces items known to be different to participate in the groupings. This is convenient as it tends to smooth or “normalize” volatile activity. Unfortunately it virtually always colors the answer to the point that clusters have similarities to some products but don't reflect the unique behavior of any of the products consistently.

Second – Store behavior ALWAYS changes. As a result, no matter when you've clustered and how perfect your clustering criteria are, the cluster definition is almost immediately out of date. Conventional wisdom says that there isn't enough change in a season or quarter to warrant revising clusters. The reality is that unbiased analysis clearly shows us that this assumption is undeniably wrong. The change is constant and relentless. This is especially true in the schizophrenic economic conditions we've been experiencing in recent times.

If localization is something your company strives for, it won't happen if you're driving allocation decisions at cluster levels.

WHAT YOU CAN DO NOW

If you're currently allocating by setting the number of cases you send to a cluster, STOP! Even the most technologically challenged organizations can find some source of recent historical data by store and build a spreadsheet that can use more detail. If you already have technology that looks at store history and you're setting criteria at cluster level, re-evaluate whether you can manage setting criteria with more detail. At a minimum look at clustering criteria and update it frequently.

A BETTER WAY

Modern allocation systems are capable of learning much more about how individual stores and products behave than traditional solutions ever could. These systems understand a variety of levels that have been proven to influence the behavior of products within locations. They constantly monitor that behavior and utilize it to generate store specific understanding of behavior, eliminating much of the need for clusters from the Allocation process. Clusters may still be used to set some constraint

criteria, however the individual store awareness means that this criteria is less critical to achieving the desired results so we're less dependent on having well defined, dynamic clusters.

4. THE PROCESS OF SELECTING “LIKE” PRODUCTS



In virtually all allocation processes it's necessary to select a product, merchandise hierarchy level or group of products to use as a base of historical data to make allocation decisions. Assuming a constant of source data (historical sales, historical demand etc.) the decision of what products or product groups can be the single most influential factor affecting the results of your allocation.

THE HIGH STAKES GUESS

Choose a base of products that's truly reflective of the item you're allocating and it's likely you'll get a decent result. Choose a base that's not and you'll almost certainly fail.

In the process of making this decision we use our judgment to make assumptions based on what we believe to be similarities. Since many products we allocate are new, we can't always use an item's own history. Even when we can there is rarely enough activity at SKU / store level to make good decisions. As a result we look for similar items to group together and give us enough data for the decisions we need to make.

We consider similar fabrications, silhouettes, colors etc. We assume that these similarities mean items will act similarly. Sometimes that's true. More often than most people realize, it's false. We're biased in our assumptions, but we have to be. Unless you are unique in the retail industry, as an allocator you're not afforded the time to prove out the assumptions you make. So what's an allocator to do?

WHAT YOU CAN DO NOW

Make time to do some analysis. A better allocation puts merchandise that would have been sold at markdown into a store that will sell it at full price rather than being out of stock and missing the sale. The truth is that consistently making a better decision about the product base of your allocation can lead to over a 1% increase in revenue and margin. It may not sound like much at first but for a \$1B company that's \$10M in sales and around \$3-4M in profit in a typical case. That can quickly pay for a few more people, better technology or other improvements. Take a day as “analysis day” and look at products based on the characteristics you tend to group by.

When you look at all blue tops individually, do they sell similarly? Is this true by store or cluster? If so, it's a keeper criteria; if not, maybe looking at fabrication or silhouette will have more impact. The influencers will be different for different product groups, so take different passes for different product groups. Expect the things you find and results you get to be subtle. Using the better criteria will usually only shift a few units or packs within a given distribution. Shift consistently for the better across all stores, products and receipts it quickly adds up.

A BETTER WAY

When looking at updated capabilities in allocation look for systems that are constantly analyzing product behavior by store. The best systems today are looking across multiple levels and groups of merchandise and location and learning about how each relates to individual product behavior within individual stores. Doing this allows them to do the analysis described above at much more detailed levels and to constantly update the results which become the basis of your allocation decisions.

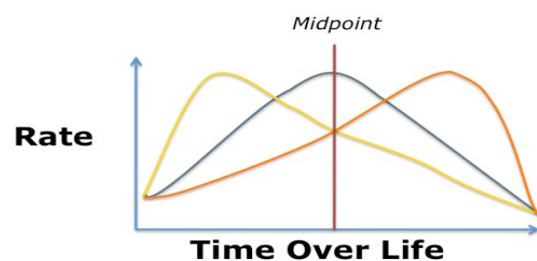
Done right, results from using technology with this capability can quickly push that 1% gain mentioned above into 2-3% gains. That's potentially \$9-12M of profit per year in our example. Enough to pay for the technology investment within just a few months.

4. PRODUCT SELLING LIFECYCLE

CONSIDER PRODUCT LIFE WHEN CREATING ALLOCATIONS

You already know most allocated products have a distinct life, be it 6 months for a fashion basic or 3 to 4 weeks for a high trend fashion item. Lifecycle exists, but how can we understand and leverage it in the context of allocation?

There are two points when lifecycle can have a significant influence on allocations. In initial allocations, understanding lifecycle can help you make a better choice of what to use as a base when allocating. More significantly, however, when there is an opportunity to re-allocate held back inventory or secondary receipts, understanding how a product is actually behaving relative to its life can have a huge impact on results.



PRODUCT LIFECYCLE AT THREE DIFFERENT STORES

Take a look at the chart to the left. It represents a product and its behavior in three different stores throughout its full price life (each line is a store representing indexed sales or demand across time). The yellow store took off with this item at introduction but has been falling off ever since (a "fashion leader" location). The blue store built to a peak and has begun to taper off (a typical or core store). But the red store

has had a slow build to its peak (a "fashion follower" location).

If we can understand this lifecycle variation it becomes apparent that we can make better decisions at different points in time. If we're halfway through the life of this product how can we make a better re-allocation decision? At the midpoint all three stores may have sold the same number of units. If we only use 'sales to date' as our base, we've lost the opportunity to leverage understanding of lifecycle. Both the yellow and blue stores have reached their peak. The red store is still building and has a lot of potential. If we're re-allocating this product at that point, more of our available inventory should be going to the red store, perhaps some to the blue, but ships to the yellow store will likely result in markdowns, probably deep markdowns before it's through. So how do we get to this?

WHAT YOU CAN DO NOW

When constrained by older allocation processes or technologies, your main weapon to use in the fight against lifecycle is your time selection. First and foremost, validate that the time window you are selecting does not include periods of high stock-outs or high markdowns. If it does, it's not representing the lifecycle potential. Select product(s) with a similar lifecycle to what you expect from the allocated product for a forward period representative of the period you're allocating into. In doing this you begin to capture the lifecycle characteristics that will influence product behavior. If re-allocating, try to include the allocated product's recent performance together with a product of similar volume that lived for the remainder of the lifecycle expected from the allocated product if you can find one.

A BETTER WAY

Modern technology allows more advanced allocation systems to constantly monitor product lifecycle patterns within and across products and their lives. This learning about the reality of historical lifecycles can be used as a knowledgebase to apply to new and young items. Understanding of how items behave and how they are trending enables these systems to react to the unique lifecycle characteristics of products within each store so action can be taken on allocation recommendations. This maximizes full priced selling potential, reducing markdowns significantly.

This knowledge can also trigger alerts that notify merchants when products aren't behaving within anticipated lifecycles. Awareness can open opportunities to either acquire more product (if available) when a product is going to live longer than anticipated resulting in missed opportunity - or to accelerate markdown plans when a product is going to reach end of life sooner than anticipated leaving too much excess inventory.

5. FORECASTING IN FASHION?

OVERCOME LIMITATIONS TO FORECASTING BY USING BETTER DATA I know many of you believe, like I do, that there should be no reason for separate systems supporting allocation and store replenishment. Philosophically the objectives of these two systems are exactly the same: Get the product you have available to the stores where customers are looking to purchase it when they expect it.

So why do there continue to be two separate solutions for these very similar processes?

ANSWER: FORECASTING LIMITATIONS

I've seen numerous philosophies and initiatives come and go in my retail career. One of the most intriguing has always been attempts to apply the automation existing in many forecasting, replenishment and other supply chain systems to fashion allocation. My memory is littered with examples of attempts and failures in doing this – from both colleagues and personal experience. The few who have claimed success in the past usually measure success as “ability to execute” rather than “ability to achieve quality allocation results”.

Why is it so difficult to forecast fashion? There are a number of reasons, but the primary issue is short life. Traditional forecasting systems need long periods of historical activity to identify selling trends and begin producing results they have confidence in. Add to this the complexity of sized merchandise and the data is much too granular to draw SKU / store level conclusions from. Many have come up with complex algorithms, constraints and rules that attempt to address this issue. My experience has been that while these can do a better job than a traditional forecast, that's really not saying much and the effort isn't justified by the result.

So, as retailers, we have adopted an alternative approach, allocation. If we look at allocation conceptually it's mainly a surrogate to address the limitations of forecasting and store replenishment. Since the products don't live long, we supplement our need for more historical selling time by applying our intuition of similar products or product groups and use those to give us more data. This allows us to begin seeing selling patterns. We then apply calculations that interpret the relationships in this base of data to derive a calculated recommendation.

These calculations are simpler than forecasting routines, but together with the additional merchandise that makes up the base of data they are much less volatile and therefore return reasonably stable results. We review this result and change it based on other dimensions of data we analyze - and based on assumptions and intuition. Most retailers have long felt intuitively that we can do better, but how?

WHAT YOU CAN DO NOW

Since allocation is generally a mechanism to more simply forecast sales and inventory need, short of implementing a new system we must improve the allocation data and calculations. As discussed earlier, spending more time selecting the products we use as the base of data can have profound impact on the quality of allocation results. If we spend more time finding the data that more closely

reflects the trending, lifecycle, seasonality and historical demand of the item we're allocating, results ultimately improve.

A BETTER WAY

Recently there has been success applying forecasting to fashion allocation. They have done this by combining advancements in technology with innovation in retail science to understand the relationships of behavior across many different product and store types and levels. The resulting understanding of behavior across multiple dimensions is used to derive the likely behavior of the product you need to allocate.

With the best of these systems, even though the underlying logic is much more complex, execution has thankfully been simplified. Since these systems also understand what you as an allocator are trying to achieve, they can execute to that automatically. Only when they cannot do what you've asked of them does the allocator need to intervene.

6. ARE STORE PLANS WORTH THE EFFORT?



There's no disputing that having a good plan is important in retail. In the context of allocation within retail – especially fashion retail - it's common to see a detailed store plan as the driver of allocation execution. The philosophy is sound: invest in creating a solid plan that you can simply execute to. Unfortunately few tools enable users to manage detailed plans with the appropriate metrics and frequency to keep up with changes in demand.

KEEPING UP WITH PLANS

In the last five years the pace of change in customer behavior has increased dramatically. Over this time the use of last year data has not been a valid indicator of trends, especially when servicing individual stores. Customers are changing their buying patterns regularly and in many cases the entire demographic makeup of shoppers in stores has shifted. The only way to keep up with these variations is more frequent updates to our understanding of customer behavior.

Traditional store planning approaches are not suited to being updated as frequently as needed to keep up with these changes. This is especially true when we are updating detail level plans to drive allocation. Allocating to an outdated plan that doesn't reflect what demand will be is not of much help when striving to achieve strategic company objectives such as increasing volume, turns or profitability. The underlying objective of these plans is often to ensure a presentation or image is maintained or to set a capacity ceiling in given locations. This process can often be shifted to (and is typically better served in) assortment planning processes. When that objective is accommodated, the remainder of allocation execution must be more responsive than a static, manually managed store plan can be. What can you do to understand and respond to the rapid changes in customer behavior?

WHAT YOU CAN DO NOW

The simple answer is to update your store plans more frequently. Much more easily said than done (if feasible at all) within resource and time constraints.

Another option to consider is to change the role of your store plans. If you can limit them to becoming vehicles to define only higher level image, presentation and/or capacity requirements by driving min and/or max parameters, you then may be able to free up your allocation system to interpret the trends within recent activity and weigh them more heavily into the final allocation decision. This is true for both initial allocations as well as in season allocations. It may even be possible to shift the responsibility of defining these parameters into other, existing planning activities such as assortment planning. If that happens, you can free up valuable time to do more analysis and determine superior allocation criteria as discussed previously in this series.

A BETTER WAY

Technology has come a long way over the last 5 or so years in its ability to apply more intelligence to defining and solving these problems. Look for the ability to understand, interpret and execute to changes in store and product behavior at a very granular level. Modern software can define the strategic economic objectives of individual products and allow allocation to maintain an image while still being free to react to the most current behavior.

Understanding historical demand is hugely important to making the right decisions going forward. Understanding behavior also means gaining insight into the seasonal characteristics of products and stores and understanding the unique selling patterns across the lifecycle of individual products.

7. MORE THAN ONE SHOT AT PROFIT

TEST THE OPPORTUNITY IN A SECOND ALLOCATION SHOT IN SHORT LIFE MERCHANDISE



When fast fashion merchandise sells, it's quickly replaced with the next great style. Single allocations are the nature of short life fashion. However, conventional wisdom follows that because this merchandise sells through so quickly, there's no opportunity to react. Retailers must instead rely on their experience and the "art" of retail to guide them to the single, best allocation answer with the ever present "One Shot Deal". One receipt shipped completely to fulfill all demand.

ONE SHOT TO MISS OPPORTUNITY

While this may seem to make sense for very short life items on the surface, it invariably leads to missed opportunities. Some of the assumptions that have led to this becoming commonplace in fashion retail were based on technology and/or process limitations. Any other reasons deserve a friendly challenge. Can using one to four weeks of actual selling to drive a small second shot really have a significant improvement vs. the one shot deal on an item that lives for five to eight weeks? In a word... YES! There is enough insight in that little bit of data – and enough error in your initial allocation assumptions - that doing this well invariably provides improved returns.

Consider this: If you avoid a 20-30% markdown in 5-10% of your stores by sending an item that would've been marked down to a store selling it at full price rather than being a lost sale, how much does that add up to in margin? Now extend that for all products that ship with one shot. It often adds up to hundreds of thousands if not millions of dollars in found profit annually. I'm not suggesting that there's no cost to this. I frequently get challenged with reasons why "we can't do that" - Suppliers won't... DC's can't... labor costs are too... etc. While these can be real concerns, they're not issues beyond being addressed. Does having a second allocation opportunity provide enough return to justify the effort? Until you ask the questions and do the math you can't be sure. Here's a hint though... if executed well it almost always does.

WHAT YOU CAN DO NOW

If you can do a second shot but you're not doing it, start! If you have limitations keeping you from doing it, challenge them. Have you asked the vendor if they'll ship in two shots 2-3 weeks apart? What if they say it'll cost them too much. A nickel per unit in cost hike on a \$20 item is probably easily offset by the benefits. Do the math & ask! Same with DC costs. Is there a corner of the DC we can use? Can we put one person on it part time for a test within a category to prove it? Try these things now and you could be poised to make significant impact to your next season.

A BETTER WAY

Modern systems leverage the latest technology to analyze what the last week's or even the last few days mean to the behavior of a product. They can relate this to other items and locations now - and in history - to derive how this item is acting within its lifecycle and to derive a much more confident representation of what's likely to happen as it moves toward the later stages in its life within each store. This enhanced understanding of product and store behavior commonly leads to profit increases well beyond 4% and into double digit increases in some cases.

8. WHAT'S YOUR STRATEGY?



OK, you've spent the time and effort to select the perfect historical activity criteria. You now have the best possible representation of future activity you can get, now what? How will you support that with inventory?

Let's start by taking a look at traditional approaches. Once you have an idea of how an item will sell, what do you do next? The common assumption is that if all stores have the same time supply (i.e. weeks of supply) of inventory all will be well. Alternatively, many systems use the premise that a store's inventory need is equal to its contribution percent of the forecast or historical selling. Unfortunately these assumptions

all short in a few ways:

1. We never have the perfect forecast or criteria for all stores. As such even if we give the same time supply of merchandise they won't sell through equally.
2. Most of us are constrained based on packs. So if a store needs 9 units and we have a pack of 6 we send either 6 or 12. We're now under or over stocked. Which is the right decision?
3. We haven't considered the true economic impact of the decision. If I send three percent of my inventory to a store generating three percent of historical sales, what is the likelihood and cost of potential markdowns? How does that compare to the likelihood of missing a sale? The answer is different for each location.
4. What is the relationship of the time supply to the presentation? What if presentation represents six weeks of supply in half your stores, but you only have four weeks of supply at the DC? If we constrain to presentation low volume stores steal inventory from high volume stores who may get less than three or even two weeks of supply.
5. We haven't considered the role of the item in the assortment. Chances are you're treating all items the same. An item that is in the assortment to drive traffic has different inventory requirements than an item whose role is to round out an assortment. These are different from the profit generators, which are different from your core assortment and key items etc. These roles vary by product but can also vary by location for a given product.

WHAT YOU CAN DO NOW

Starting with the assumption that you've chosen a good base of data, most conventional allocation systems are then limited to the calculations and constraints to determine the inventory need by store. We need to manage these based on what we're trying to achieve with the merchandise. Here are some things to consider:

If it's a slow mover: Ratchet down the presentation requirements and let your allocation system drive who gets the inventory.

If it's a traffic driver: Make sure you don't short-change small stores with too conservative a minimum. If you do the larger locations will take everything.

If it's a high margin, profit item: Don't be as concerned about chasing opportunities that may look like over stocks. Select more aggressive pack rounding options (round up) if you have the choice. The larger profit margin can quickly cover the impact of markdowns if you sell a few more units.

If it's a low margin item: DO be conservative about chasing opportunity because sending markdowns may be devastating to profit. Select more conservative pack rounding options (round down) given the choice.

A BETTER WAY

Today's best systems generate regularly updated forecasts which can be used for new and existing items. The forecast shares not only the end unit need, but also the learning that went into deriving that need so all of that understanding can be used in solving the inventory side of the problem as well.

This understanding together with defining the role of the product can give these sophisticated systems the information they need to focus on how much inventory is required to meet your financial and strategic objectives with the product. The role reflects most of the complicated data metrics and parameters. Traditional systems used to require merchants to understand, interpret, define and manage these settings manually.

9. METRICS TO WATCH

GO BEYOND SALES AND INVENTORY UNITS TO FACTOR PROFITABILITY METRICS INTO YOUR ALLOCATIONS



When allocating in retail we're ideally executing to a specific objective as described in our last post. That objective can be a variety of things including maximizing sales, maximizing service, maximizing profit or something similar. In reality all of the various possible objectives are all intertwined.

Focusing on just one metric may allow you to maximize it, but without visibility to and consideration of the others it is likely that you will sacrifice something more than would be ideal.

Conventional allocation solutions are generally unit based. As such they are able to attempt inventory or sales focused objectives but they have little or no visibility to financial metrics of sales, inventory and especially profit. This imposes a severe impediment to achieving the most basic of objectives in retail, **Maximizing profit**.

In addition to this, conventional allocation calculation capabilities tend to focus on one unit based objective at best. The most common is to level the time supply (i.e. weeks of supply) of inventory across all stores based on historical selling. The problem here is that say, six weeks of supply in one store may be profitable, the same in another store may not. This is especially true when scarcity and abundance of inventory or packs are a part of the allocation equation. So how can we get to more business oriented goals of getting the most profit or revenue from our allocations?

WHAT YOU CAN DO NOW

Assuming you've selected a quality base of data using methods discussed in prior topics posted to this series, the next goal is to get as much visibility to the competing metrics as possible. If you are able to define metrics such as dollar volumes or ideally some measure of profit or even simple margin – get them into your view. Even if they aren't a part of the initial recommendations, they can be used as checks and balances to the result you do get. If possible, utilizing a calculation that impacts profit for overstocking beyond your target can make this even more useful.

Depending on the flexibility of your system you may also be able to consider these metrics in your recommendation calculations. While it may be too complex to create sophisticated logic around the financial results themselves, you may be able to set caps and / or alerts for situations that would create negative financial results. An example may be to cap a shipment where sending another pack would go over target WOS enough to have a negative impact to margin of more than "X%".

A BETTER WAY

The capabilities of technology and mathematical sciences continue to expand. Innovative systems are able to measure both historical and future impacts to financial metrics such as revenue and profitability. When applied correctly they can measure impact across a variety of competing objectives and find the right point to maximize the primary objective (say profit) without sacrificing the others (revenue, service level, availability, presentation etc.). In doing so the answer for two locations which might look exactly the same in historical sales units often result in very different answers that return better results.

10. ARE YOU CONSTRAINING YOUR POTENTIAL?

Every retailer has limitations to what they can or want do in the process of allocating. Generally we refer to these limitations as constraints. For purposes of our allocation discussion we'll discuss constraints in two categories:

PHYSICAL CONSTRAINTS

These are things that exist as physical limitations which may need to be considered in the process of allocating. Examples include capacity constraints such as shelf or rack capacity, eligibility (whether or not a store is eligible to receive an item at all) and packs and pre-packs. Physical constraints are facts that must be understood and considered to make the best choices in any allocation situation.

OPERATIONAL CONSTRAINTS

These are things that we as allocators impose to ensure that the volatile nature of allocated merchandise does not cause our system's recommendations to go too far in a given direction. Examples include mins, maxes, caps and target time supplies. Operational constraints are generally required to compensate for areas that allocation systems are unable to consider or understand otherwise.

Generally all constraints can be thought of as challenges which make the allocation process more complex. They are typically cumbersome to manage and often get in the way of allowing your system to make optimal decisions. So how can we best use constraints to minimize work and maximize results?

WHAT YOU CAN DO NOW

Ease up on the constraints. If you're using better criteria, thus enabling your system to drive results more representative of what your stores need, the requirement for constraints is reduced. Here are some examples:

Physical constraints

Eligibility - tends to be binary (on or off) so there is typically not a lot of opportunity here. If, however, you are using eligibility to reduce stores in an allocation due to limited supply of stock, consider *not* doing that and rather letting demand determine who should be included.

Capacity – is often used as a max constraint. While this makes sense logically, be sure you're considering the selling of inventory between the time you're allocating and the time the new stock will hit stores. Your current inventory will be reduced during this time opening more capacity by the time the allocated inventory arrives. You should also monitor how often capacity is imposed. If it's frequent, it may be time to consider giving the product more space.

Packs – are typically handled with rounding rules. If you have the option, consider using different rounding rules for different types of product. High ticket items and large or space consuming items are good candidates to round down more aggressively (reduce potential markdown or carrying costs) while high volume and inexpensive items are good candidates for rounding up more aggressively (less

financial exposure)

Pre-packs – also generally rounded. If you have the option to configure your system to consider each item individually then do rounding based on total over or under, that is more effective than executing at the aggregate of everything in the pack. See also the note on size at the bottom of this post.

Pack Optimization – You may also have, or be considering, pack optimization options. Ideally this process should be evaluating the financial impact of pack decisions. In the case of pre-pack optimization it's important that size profiles always be fresh. The assumption that size activity does not change within a season is false and should be challenged aggressively. Update profiles as often as time permits.

Operational Constraints

Mins & Maxes – Widen these wherever feasible. Lower mins avoid overstocking the lower performing stores. If you're setting mins to ensure presentation, make sure you're considering presentation for the lowest volume / space combination for the level being set (i.e. cluster). Similarly, maxes should be capping only the most extreme cases at the top of the volume for the level (i.e. cluster) that they're set for. Some systems can actually take chain level min/max's and automatically modify them across volumes enabling you to set them at an average while the system grades them across individual volumes. This can achieve the same result with less effort and more intuitive parameter setting.

Caps – If you're using a calculated trend that must be capped, these caps should be set for groups of stores (i.e. volume clusters). They should be set letting lower volume stores chase trends more aggressively since the impact is likely to be as little as one case. Higher volume groups should constrain the trend more aggressively to ensure they don't overreact to a trend that may result in damaging overstocks. If you must set caps at chain, err on the side of caution by setting them as you would for high volume stores. There's too much volatility, therefore exposure across your store base.

Time Supplies – If you must allocate to a time supply of inventory, do the pre-analysis to determine what an effective target is. If you have the inventory to achieve six weeks of supply (WOS) but tell the system to allocate twelve WOS, you're forcing it to make unnecessary balancing decisions that negatively impact the result. Determine what WOS can result with the existing and available inventories first, then set the target.

A BETTER WAY

Today's technology has evolved to the point that many of these constraints can be reduced or eliminated. In some cases that's due to considering and automatically optimizing them as components of the allocation. Awareness of physical constraints are a fact that can often be interfaced in to allocation from other sources (Warehouse, Order, Assortment or Space systems etc.). Operational constraints are often reduced to just those requiring intuitive input. Presentation requirement defined as a min being a primary example. Once that minimum quantity floor is established, executing to a targeted objective such as achieving profit, revenue or service goals accommodates many if not all other constraints in the process.

Note: Size is sometimes considered in a category similar to constraints. It is a subject that deserves to be covered in and of itself.

PUTTING IT ALL TOGETHER //

We've covered 10 different strategies to consider in the process of executing allocations. Most existing environments will find some of these to be easy to adopt while others will be more challenging. But what can you expect as benefit for making the investment? Is allocation really an area worth investing this additional time in?

To answer these questions it's a good practice to get a high level view of what is impacted. In the introduction to this series, I wrote about the fact that there are many more decisions in the process of allocation than there are in the other merchandising related activities. To put this in perspective, let's compare the three major components of merchandising. We'll use a retailer with a range of fashion and basic merchandise offerings having 3 distribution centers (DCs) and 500 stores as an example. Different environments see the following activities in different ways, but for the purpose of this example I've broken them into assorting, ordering and allocating as defined below.

THE NUMBERS GAME

Assortment planning (10 decisions) – Defined for purposes of this discussion as determining what products to buy, we generally have one major objective. That is to determine what products to buy or not buy. If we include decisions around ranging (what stores get the products we select) then we also make this choice for stores. In virtually all fashion environments, stores are combined into clusters / volumes or some similar groupings. If we assume 10 of these groups then we're making 10 'include or exclude' decisions per product.

Ordering (12 decisions) – Defined as determining how many of the items selected in assortment planning should be shipped to a warehouse or DC. Here we're making the same number of decisions as we have DCs. This is multiplied by the number of receipts we plan. In an environment with $\frac{1}{3}$ of product being one shot, $\frac{1}{3}$ being 2 shots and $\frac{1}{3}$ being ongoing basics we may have an average of say 4 receipts per product. If we have 3 DCs that's a dozen decisions per product ($3 * 4 = 12$).

Allocation (2,000 decisions) – Defined as determining how much available inventory goes to each store. Here we also have decisions to make for each receipt. If we use the average of 4 receipts from above we need to make a store specific choice for each store for each of those receipts. In a chain with 500 stores we're now talking about 2,000 decisions ($500 * 4 = 2,000$). In the case of direct to store ordering, generally allocation is combining the ordering and allocation steps.

Using the above logic, there are clearly many more decisions in the process of allocation than in ordering and assorting. Obviously there are multiple dimensions of things to consider for each activity, but ultimately allocation has more instances for good decisions to be helpful, or perhaps more importantly, for bad decisions to be detrimental.

WHICH COMES FIRST?

So if you're in an environment where you need help in all three of these areas, what then? Which should you focus on first? Well each situation is unique and these choices are dependent on your current capability and proficiency. Generally there are two reasons why it makes sense in most

situations to focus on allocation first.

The first reason is explained in the numbers above. More chances to improve the quality of the decision generally have more bottom line impact. Sure, if you do a better job of choosing the “perfect product” it will result in better performance. It’s rare that those choices with dramatic influence are missed by merchants in the process of assortment planning. It’s much more common that over assortment is an issue.

This leads us to the second reason to consider allocation first. If you make the perfect assortment choices, and even create the ideal orders to DCs, a poor allocation can still irreparably damage the results you get. If, however, you make fairly good decisions on assortment and ordering (which is common since there are fewer choices being made and therefore more thought going into each) an improved allocation can make the best of what you ultimately end up with. These improvements, if done well, can almost always have more impact than changes to ordering and assorting. This frequently generates enough return to fund investment in the other two areas as time permits and as your business can absorb the change.

RETAIL CONTINUES TO CHANGE AND EVOLVE

To add to this, complexity is the reality of today’s retail landscape. Customer behavior is changing at paces never before seen in retail. Between economic influences, brand loyalties, fashion preferences and other factors, today’s customer is more unpredictable than ever. This change is happening differently at each individual store so it’s important to have visibility to those changes and have the ability to respond to them immediately. Allocation is the last chance to identify and react to these and therefore is the closest you get to meeting the demand that your customers represent.

The last chance to get it right is logically the first place to invest in doing a better job.

QUANTUM RETAIL SOLUTIONS

Quantum Retail offers an innovative approach to help retailers transform their retail data into actions and insights that both optimizes their business results and maximizes their inventory investments. Today, Quantum is already helping the world's most successful retailers improve customer satisfaction by:

Maximizing their high-value sales: Quantum's comprehensive and granular responses to product demand give retailers a view to their consumers' behavior coupled with the ability to quickly act on that intelligence for more full-price sales.

Delivering the best brand experience across all of their channels: Q continuously learns, dynamically analyzes and then responds to changes in demand for every product and channel to present shoppers with the items they want and where they want to buy them.

Getting the most from their retail experts: Quantum's solutions offer maximum flexibility and usability with an intuitive product design to allow retailers to focus on other parts their business and their customers. Our exception-driven interface, with built-in business alerts and workflow strategies, provides both effectiveness and productivity in an easy-to-use solution.

Working with their existing environments: Q is adaptable within the retailer's existing environment and works in conjunction with many of today's leading supply chain and merchandising platforms including Oracle, SAP and JDA.

Quantum Retail are the experts at combining deep retail and merchandising intelligence with a dynamic technology engine that adapts to a retailer's needs and makes changes based on how their customers are behaving. Q continuously learns and dynamically analyzes and responds to changes in demand for every product and store location to maximize value for retailers of all types. More information can be found on our website www.quantumretail.com.