Q WHITE PAPER //

MAXIMIZING THE RESULTS OF YOUR EXISITING LEGACY ALLOCATION SYSTEM

The economics and competitive landscape of the modern retail marketplace have left retailers looking for ways to maximize their existing infrastructure to better support the emerging challenges they are facing today. This white paper addresses various options for retailers who currently use packaged or custom-built legacy allocation systems and explores methods that drive improved results in the form of increased sales, margin and reduced markdowns.

QUANTUM RETAIL TECHNOLOGY

MAXIMIZING THE RESULTS OF YOUR EXISITING ALLOCATION SYSTEM

WHITE PAPER//

INTRODUCTION

"Retailers have invested millions of dollars implementing supply chain and ERP solutions. The rapid pace of change in international and omni-channel environments has retailers looking for ways to augment their existing environments with "smart" capabilities to meet the emerging needs of today's highly competitive retail environment. This White Paper addresses those issues and offers suggestions on specific ways to better leverage an existing legacy allocation environment such as JDA, Oracle, SAS, SAP or others to maximize sales and profits through better utilization of the inventory and technology investments that have already been made."

Greg Wilson
Vice President Field Strategy, Quantum Retail

OPTIMIZING YOUR LEGACY ENVIRONMENT FOR BETTER ALLOCATION RESULTS

The challenge

As retailers, our primary goals are to create customer demand for the products we offer and then capture that demand by having inventory available when and where that customer demand occurs. Creating demand is fundamentally useless if we cannot fulfill it with inventory and profitably close the sale.

In traditional brick and mortar retailers, and particularly those in the fashion/apparel verticals, getting inventory to stores has been accomplished with a merchandise allocation system. There are several commonly used systems, JDA-MMS and Arthur among others, that were introduced several years ago as well as custom built solutions retailers have written. Historically, allocation systems enabled retailers to eliminate the need to sift through vast amounts of data to get closer to insights regarding how stores are performing, thereby suggesting what merchandise to consider sending to fulfill demand. But in the 20+ years since those packages were originally developed and deployed, a lot has changed in both retail and technology and most of the complex problems retailers face today can be solved by advancements in technology and retail science.

THE INCREASINGLY DYNAMIC & COMPLEX WORLD OF RETAIL

Retailers are currently faced with radical changes in how retail is being conducted, with the pace of change increasing exponentially. E-commerce channels have permanently changed the behavior of shoppers and how retailers need to think about fulfilling demand. Competitive pressure from other retailers has changed as well. New approaches to marketing (mobile, social, cross channel, international) and significant investments in the technology infrastructure to better leverage their inventory investments have made the competitive landscape far more challenging. Both Amazon and Google continue to define the new direction of retail and traditional multichannel retailers are struggling to come to grips with this new Omni-Channel race for market share.

And technology is anything but static. The latest retail technology is utilizing more powerful analytics and business intelligence to help meet inventory challenges. Understanding what actually occurred in the past *and why*, and applying that insight to estimating what will happen in the future is much more practical and accurate. Today's most successful retailers understand the potential of accurate demand to be transformational for their business.

Allocation systems have evolved over the years, but they are still based on principles and constraints that were developed decades ago. While the addition of more controls and constraints have improved on the original concept, the approach of asking an allocator to interpret a product's characteristics and select criteria, constraints, and items that will reflect a product's forward behavior has become impractical. Spreadsheets, business intelligence or analytics projects can provide some relief, but don't really offer a complete or sustainable solution.

Recognizing that the allocation capabilities of the past are insufficient to meet today's demands leave retailers with the challenge of what to do. Full scale rip & replace projects for a mission critical capability such as allocation of merchandise is costly, time consuming and risky. This is especially true if your investment in allocation is recent. Spreadsheets and skunk-works BI or analytics projects can provide Band-Aids, but do not really solve the problem in a scalable way. What alternatives exist? To answer this, let us first look at three common areas where retailers look to expand the capabilities beyond their legacy allocation system.

PART 1: CHOOSE THE BASE OF DATA

Allocation relies on a business user to make a series of judgment calls about what data set should be used to drive the inventory placement decision. They must determine what product or products will represent both the shape of selling (when there is a lot versus a little volume) across time as well as ideally finding historical items with a similar velocity (how many will I sell in that shape). Since they are typically limited to historical sales as reference data, they must also limit the timeframe to periods where they did not suffer a large volume of stock outs.

Finding the ideal combination of products that meet these criteria with the approach that legacy allocation solutions provide is virtually impossible for one item, let alone thousands. Often the right choice does not even exist. In most situations the only tool an allocator has to guide this decision is intuition. Allocation has grown in sophistication, but most of that has been to offer the user more choices to make the same decisions. It remains effectively a guess.

How we can optimize it:

Rather than relying on historical sales, these decisions are most accurately driven by historical demand. That includes not only understanding what was sold and where, but also **what sales were lost** because we were out of stock. Sales plus these "lost sales" represent the **true historical demand**, or what could have been sold.

That said, selecting what historical demand to use would still be a guess if we apply traditional allocation philosophy. Instead, it makes sense to break the activity into components we can confidently evaluate and profile.

For example, the shape of selling across the course of a year is seasonality. There is a range of ways to better predict seasonality. Some levels of product hierarchy or groupings are ideal to represent the seasonality of products in their group. But it is possible to evaluate what those predictive levels are to solve that portion of the problem. Similarly, tracking how a category of products sells at introduction versus when it is in-season versus when it is nearing the end of life is known as product lifecycle. Understanding lifecycle behavior is a critical component to making quality allocation decisions. Again, we can find product levels or groups that reflect this well. These, however, are typically not the same levels as we found for seasonality. The same philosophy can be carried forward again for determining the velocity (how much will sell within the shape of sales) of newly introduced items.

It can also be important to distinguish traditional store channel demand versus the portion that is being driven by omni-channel demand. Doing so allows us to see what the impact is when one channel trends differently from another. This is particularly important to address potential allocation problems for retailers who are supporting local fulfillment from stores. A sophisticated allocation solution can understand the uniqueness of each channel and combine the resulting understanding into a common, optimized inventory target by location.

Finally, in all of these cases, these methods should be used to generate *forward* looking forecasts rather than backward based estimates. High confidence representations of seasonality and lifecycle enable confidence in forecasting even new, short life product, a problem that standard allocation systems struggle with. Utilizing a solution designed specifically to handle the complexity top tier retailers face can automate the process thereby lifting the analysis burden from the allocator.

PART 2: SETTING THE GOAL

Understanding the factors that result in a solid forecast is only the starting point. Legacy allocation systems also rely on the user to make a call on an inventory target objective. Most commonly that is expressed by a Weeks of Supply (WOS) target. Alternatively, the allocation quantity can be predetermined (typically another guess by the allocator) and a percent of average index (POA) pushes that product to stores using the results of the guesses described above. This criteria is often set commonly for all stores or by store grouping. Deploying this method results in a couple points of sales and margin exposure for the retailer:

A) Even if the ideal WOS target is set well for the average store, the fact that it is an average means it is **inherently less than optimal** for all of the other stores in the chain or in the cluster group. Consequently all of the non-average stores are set sub-optimally.

B) Overall business performance is not based on WOS or service level. Performance, as defined by the market, is measured on revenue and profitability. Because WOS is

calculated exclusive of the business objective, how does it map to the overall business objective? Calculating the right inventory target to meet the needs of the individual store and the overarching business objectives depends on a complex intersection of variables that are not addressed in legacy allocation solutions or methods.

How we can optimize it:

To address all of these variables, forward focused retailers have turned to advanced science to help them to better derive the level of inventory that results in the most profitable outcome at both the store level and for all channels collectively. The most direct path to leveraging all of the data a retailer has at their disposal and apply it to affect performance is to utilize a solution that leverages intelligence and analytics specifically created and tuned to solve this particular problem. The most intuitive solutions are designed to be powerful, yet easy to use.

These intuitive solutions focus the retailer on initially defining the role of the respective product in an overall assortment (traffic driver, basic, seasonal basic, fashion, etc.). That role implies the literal objective (revenue, profit, constrained profit) which is used to drive and automate the calculation of an ideal inventory target.

Because these solutions are designed to work with existing supply chain and ERP environments, users of JDA Allocation or similar products can use these solutions to provide a gold standard level of capability without needing to change out the legacy solutions they already use. This mitigates the level of change and related risk needing to be absorbed by the business.

PART 3: REVIEWING AND MODIFYING RESULTS

Your legacy system derives its result and then presents it to the allocator to review and modify before it is released for all but the most basic products. This review and approval is required in large part because the confidence in deriving the answer is so low. As we covered above, the allocator will need to review the system result against a variety of variables that the system does not factor against, and then make manual adjustments in an attempt to mitigate the shortcomings of the limited scope the system considers. This activity is usually driven by retailer defined rules of thumb (e.g. largest store should never be more than “X” times the average, or everyone with a “Y” sell through should get more product). It is not uncommon for an allocator to then make further adjustments based on things “looking wrong” or “feeling wrong”.

The problem is that rules of thumb are usually generalities that do not apply consistently. For most retailers, it becomes increasingly difficult to evaluate the impact of these educated guesses across all of the variables that shifting a product from one store or channel to another may have for the respective stores, channels and for the business overall.

For example: Unlike a sophisticated system, an allocator cannot see that a store getting a recommended allocation may be a “fashion *follower*” store versus a “fashion *leader*” store. A fashion *follower* store is a store where velocity increases later in the product lifecycle compared to a fashion *leader* store which sells through early and tends to sit on product later in its life, until it is marked down.

OR

Store personnel call to request additional quantities of a certain product. While at face value the decision may seem good for that store who may eventually sell through it, there is no consideration for the impact on the overall company. Consuming that capital to have that product in one location may have actually stolen higher profitability from the stores who did not receive that product and were ultimately less profitable overall.

How we can optimize it:

Utilizing modern retail science and technology allows the retailer to determine the relevant (predictive) variables to consider in the calculations and consequently raise the confidence level of the inventory forecast. Because the criteria was set in a way that represents the ultimate goal of maximizing revenue and/or profit, the recommendation is inclusive of more directly relevant data. In addition, it is optimized for the individual location *and* for the entire business. Adjustments are then driven by preconfigured alerts that direct users to evaluate exceptions which have reached predetermined thresholds where allocator knowledge can provide tangible return. In an environment where there is confidence in the targets being presented, adjustments to optimized recommendations are the exception not the rule.

GENERATE BETTER RESULTS WITH YOUR EXISTING ALLOCATION ENVIRONMENT

The above are just a few reasons why retailers with existing allocation systems may want to consider augmenting their environment to better adapt their inventory management processes to what has become an increasingly complex retail marketplace.

In-House Analytics

Some retailers opt to build in-house analytics either within Excel or alternative Business Intelligence (BI) tools. While these tools often offer incremental steps toward improvement, they typically only scratch the surface of truly solving the problems that have the most impact on the quality of results. Long term success requires retailers to retain unrealistic levels of allocator expertise with the experience necessary to maintain them as consistent, usable tools.

Services

Some providers offer services that periodically “reset” parameters to ideal levels. While this can prove effective, it is a temporary fix. The behavior of products and locations that drive the recommendations are constantly changing. Therefore the settings that may have seemed “ideal” when set, quickly deteriorate and results deteriorate with them, forcing the process to be repeated frequently.

Permanent, Integrated Optimization

Many tier one retailers utilize Quantum Retail’s “Q” Allocation (and Replenishment) system. Q is an advanced allocation solution designed to strategically leverage all of the information and data needed to make intelligent decisions about inventory automatically. While Q can be implemented as a complete, standalone allocation system, it is componentized, so it can also be deployed on top of traditional solutions such as JDA (Arthur, MMS, E3, etc.), SAS, Oracle, SAP or even custom built systems in an optimization capacity. This allows retailers to get the consistency of an integrated optimization engine, while minimizing the cost, the complexity of implementation, the time to value and the change that allocators have to absorb.

In this capacity, Q sends optimized, store-level targets to your legacy allocation system. This replaces all of the guesses the allocator makes with goal-driven inventory targets that have been optimized for

each location. Allocators still see any results that are not automated within the familiar allocation system user interface that they understand today.

Benefits

Includes optimized replenishment

Unlike traditional solutions, this optimization approach allows you to not only support your allocated product, but it can use your allocation infrastructure to enable optimized store replenishment within the same solution. Now you will not need to compromise with a traditional allocation *or* replenishment solution trying to cover both fulfillment types, or having the need to support two separate systems for allocation versus replenishment.

Q can provide optimized answers for new product, short life product and long life product and drop the answer into your allocation system's infrastructure. No new business process, no new complex terminology, just the most sophisticated science and technology getting you the best results that will outperform even the most modern and sophisticated "replenishment only" solutions.

Typical benefits seen

Benefits from deploying Q in a legacy allocation system environment will vary depending on what system version is being used, how mature the allocation and replenishment processes are, and the characteristics of the product being managed. For example, when Q is deployed in an environment, with a current version of JDA Arthur Allocation or Oracle Allocation and a mature allocation process, Q has delivered:

- Sales increases from 2.6 to 4.6% with some product categories over 9%
    - Since this is full-price sales increases, the increase translates directly into profit
- Service Level improvements from 2.8% to 5.1%
- In-stock improvements from 2.2% to 5.1%
- Inventory reductions of over 10%

These benefits can be even greater for older versions of legacy allocation systems and/or situations where allocation processes are less mature.

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***.