

Enhanced Retail Solutions

Retail Primer

20th Anniversary Edition

20TH ANNIVERSARY

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FORWARD

No surprise- since our last primer edition everything about retail has changed, again. That is the story of retail- ever changing. The pandemic, unsettling global conflict and economic uncertainty challenge us at this moment in time. But the world has been in similar situations before, and the retail industry adapts and survives. Perhaps the last few years have accelerated change at a greater pace than ever before. That's primarily driven by technology and more forceful consumer demands. These demands have changed the way people shop and smart retailers have adapted. Those that haven't, well, they aren't here anymore.

Amazon and Walmart have created a high stakes business model with the intention to serve the consumer as quickly, easily and cost effectively as possible. That raises the stakes for everyone else. A retailer must either be everything to everyone or find a very specific niche. Selling of used products is having a moment as well as eco-friendly manufacturing. Allbirds is a great example.

eCommerce and drop shipping are maturing and many solutions exist now to help retailers and manufacturers do business over the web. Manufacturers are now selling directly to consumers via the web- bypassing the retailer. Or adding their products to multiple retailer's websites as extended assortment. That costs money though, having to own inventory and turn it to return cash. We have a new section in this primer that focuses on just that.

Retailers continue embracing tighter collaboration with their suppliers- relying more on VMI (vendor managed inventory) which has proven to reduce risk, increase sales and improve inventory productivity. Some very savvy manufacturers have created their own brands and invested heavily to promote them and create loyal followers (thanks to celebrities and social media). It blurs the line between retailer, manufacturer and licensor. This intense level of competition for the consumer's dollar creates an even greater reason to watch the numbers carefully- especially those that can indicate inventory buildup. Whoever can do that the most efficiently will win in the long run.

It is no longer optional- retail analytics are a requirement for everyone involved. Whether you work at a department store, digitally native distributor, or anywhere in between you need to track product performance, forecast, allocate inventory, assort a line and more. You need a disciplined planning process and a multitude of data points to do that and make the best decisions possible. Since the bulk of capital investment is inventory, we'll spend a lot of time talking about it. Our goal is to help you determine the optimal assortment and inventory flow over time. We cover many of the fundamentals in this primer to help you do that.

This primer exists because clients and prospects alike ask us for a quick refresher on retail math, industry best practices and our thoughts on various issues. The founding basis of Enhanced Retail Solutions was built around education- teaching manufacturers to think and act like retail buyers. Many years ago, led primarily by Wal-Mart, retailers began shifting many of their retail analytic and allocation tasks to their vendor partners. However, the core competency of their vendors was product design, production and supply chain logistics. Not allocation by size and color at store level. Not optimizing sales by meticulously watching for trends and changing the assortment mix. Not conducting SKU optimization and finding ways to make every dollar invested in inventory return at a higher rate. What these vendors needed was an education- a crash course in how to do the buyer's job and the tools to do it. Now celebrating our 20th anniversary, we've proven it can be done. The most successful retailers are those that have tight collaboration with their vendor partners. Manufacturers have learned to be trusted advisors and use data provided by the retailers to optimize both the retailer's and their own businesses.

Today we serve manufacturers, retailers and licensors. While we may focus on different aspects for each group, the central theme is the same- optimizing inventory productivity by finding opportunities that would otherwise go unnoticed. When we can do that the result is increased revenue and profit. For years we have continually honed our best practices when it comes to planning, sales and inventory analysis and replenishment. Many of those are documented here. We have used technology to integrate more data points which lets us look at more data and interpret it faster. Our machine learning algorithms provide us with "digital eyes" that can look through data quicker and more efficiently than we can. Our RetailNarrative project grinds through a multitude of data points searching for opportunities and liabilities that would otherwise go undetected. The Narrative is our adaptation of the concept of your smartphone telling you to grab an umbrella because it looked at the weather and your calendar and provided an actionable recommendation. We are doing the same thing based on the planning job. For example, it looks for SKU-store combinations that are under inventoried, yet supplier or retailer has wholesale units in a DC. It shows relevant and actionable information- much like an

exception report except it's smarter. It estimates future sales and inventory requirements and alerts the user when they need to place orders, because it understands lead time and is watching trends. We've reached an incredible point in analysis- years in the making- where we can finally quickly and intelligently make data work for us. Many analytic platforms require a strong user in the driver's seat and are limited to that user's expertise. The RetailNarrative already knows what questions to ask.

Other areas where technology is helping us is on predictability models. Because we can more easily blend different data points and detect trends and data relationships more quickly, we can react and make more accurate adjustments in our forecasts. Blending data beyond pure sales- consumer insights, demographics, weather, government statistics can all help us make better inventory decisions. It helps on both macro and micro levels. For example, consumer insights and projected new housing starts can aid in assortment planning and product development, while weather and demographics improves allocation at store level.



I still remember on my first day of my first job as a Merchandise Manager at a JC Penney store (over 25 years ago), my store manager said simply "This isn't brain science". Well, it may not be brain science, but it certainly takes a blend of art and science to be successful at retailing. Watching the numbers (sales, inventory, etc.) is vital and understanding statistics and algebra are required to improve forecasting accuracy. But you also must be able to listen carefully to customers- find out what they want and when they are looking for it. You must be able to present products in such a way to compel the consumer to buy them. You must get the pricing right, make the shopping experience care free and convenient. And you must pack their dollar with value (thanks Mr. Penney).

Many people in wholesaling and retailing aren't formally educated in retailing. Many have business degrees in marketing, finance or accounting. Luckily retailing lingo, retail math and its associated KPI's (key performance indicators) can be studied and mastered given a reasonable amount of time. Understanding the KPI's is vital- the measurement statistics and understanding what is considered "good" or "bad", which differ by product category and tier of retailing. That's the basis for the retail classes we conduct, and this primer covers the key discussion topics.

The first step in making good use of our information is collecting the data. This is not always easy- some retailers only provide limited data (no inventory or sales units only and no sales dollars). Others provide a wealth of information. Data also comes from a variety of sources- from EDI (generally the 852 POS document), web portals that download in Microsoft Excel or Text, emailed reports from buyers and more. The key is to collect the raw data and store it in a flexible reporting/database platform.

We strongly recommend receiving store level POS data (rather than chain level). Knowing each store's strengths and weaknesses allows you to build more accurate forecasts, fix inventory problems and recommend more optimal merchandise assortments. For example, being able to document how many stores are sold out or have inventory with no sales provides a roadmap to improve sell through, which is the lifeblood of the business. Many of our reports utilize store level data to visualize geographic trends on maps. The bottom line is that the buyer really needs to make changes at door level to affect the business. It is essential for many buyer-supplier collaboration models including Vendor Managed Inventory (VMI). In the VMI model the retailer passes the responsibility of planning and allocation to their vendor, which reduces risk for both parties.

This primer provides a first step in analyzing your business. Once you've mastered the basics, integrating multiple data sources together unleashes yet another level of business intelligence to help you make better merchandising decisions. Merging POS data with wholesale inventory from your ERP system improves inventory productivity and in-stock because you can line up sales estimates against your wholesale inventory in the pipeline and see where the deficiencies lie.

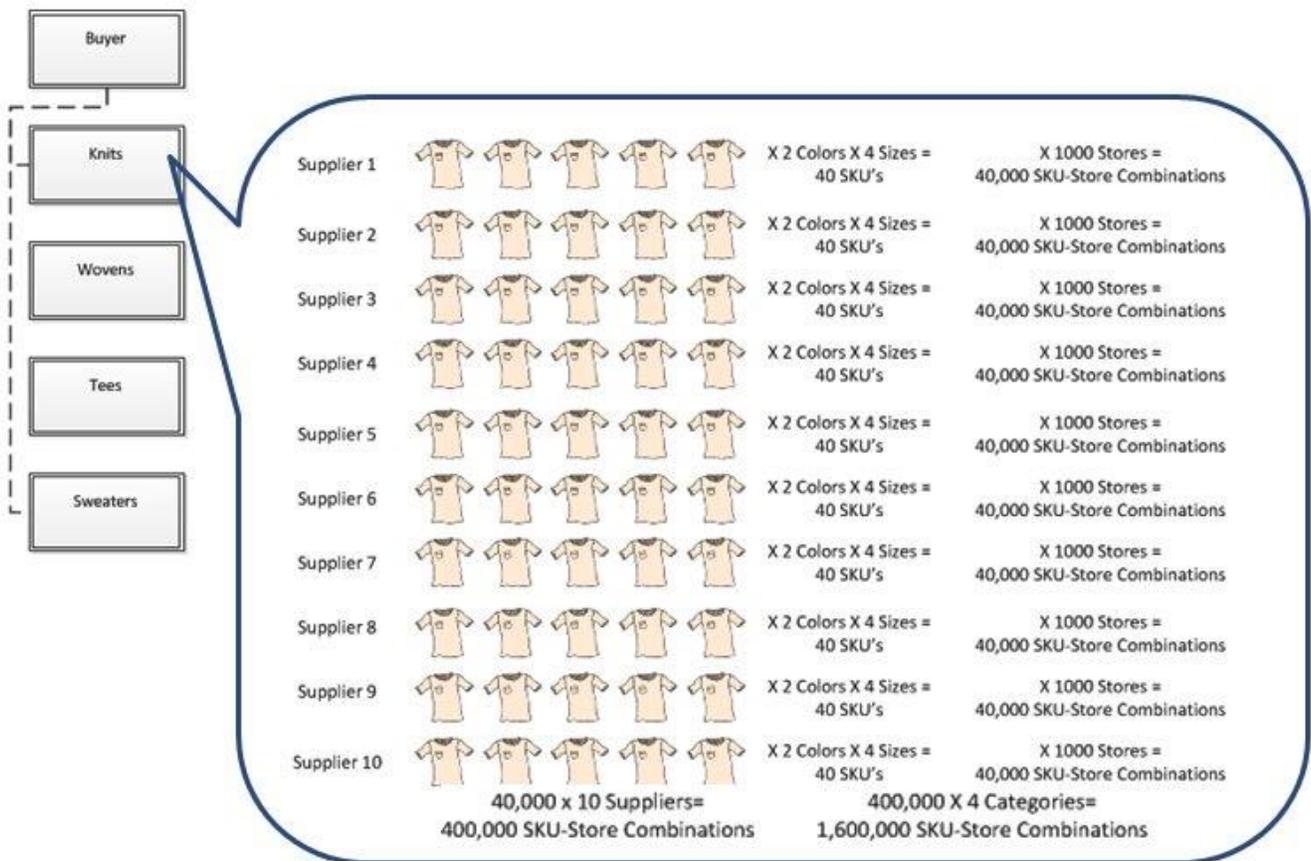
The content presented here is not intended to give you all the answers. The goal is to provide useful tools and information on how to measure sales and inventory productivity, forecasting and planning inventory, competitive shopping practices and analyzing profitability. I hope you find it useful.

Jim Lewis, Founder and CEO, Enhanced Retail Solutions LLC

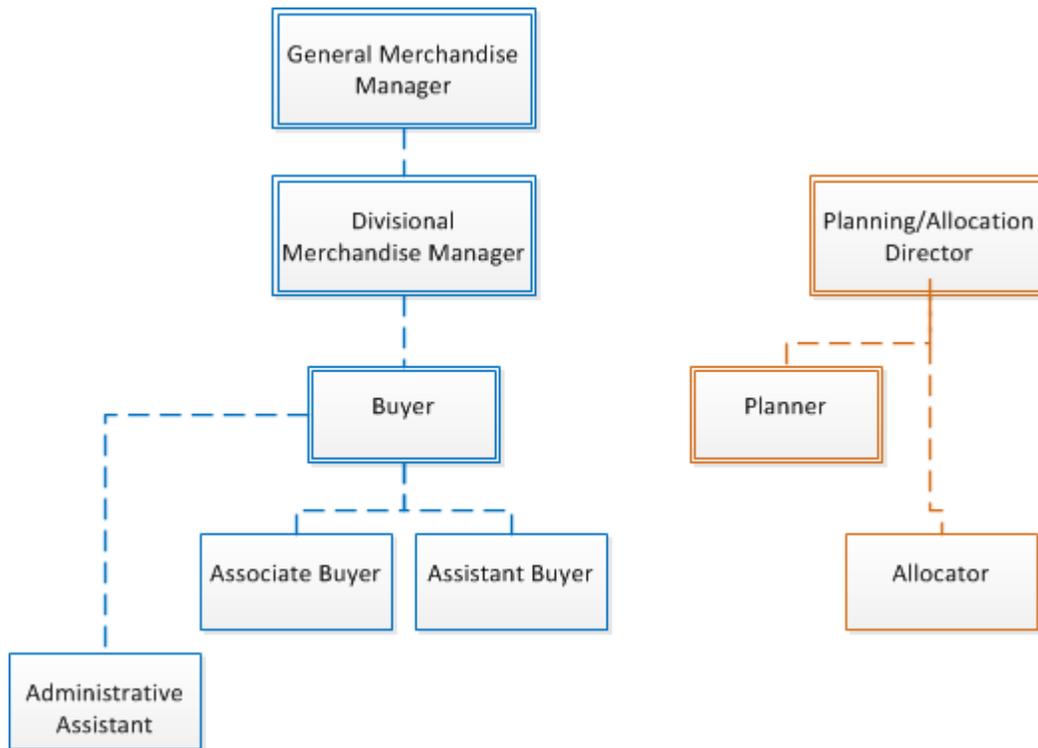
THE RETAILER'S PERSPECTIVE

Before we get into the mechanics of managing the planning functions of retail and supply we should take a moment to talk about psychology. Why psychology you ask? Because one of the key components that dictates success or failure in retail is the relationship between supplier and buyer. We work with our clients to strive for positive collaboration- which includes open and honest communication, mutually beneficial profitability and common goals to serve the end consumer. When things are working well all is harmonious, but when things go wrong (and they often do in retail), how each party reacts can make the difference between a positive or negative outcome.

Manufacturers often misunderstand buyers simply because they don't understand the buyer's perspective. Most manufacturers think the buyer is all powerful, when in fact there are many things at their level that are out of their control. I was particularly frustrated sometimes as a buyer when I found a product I knew would be good for us but simply couldn't buy it because of one reason or another- no open to buy, not enough space on the sales floor, no way to promote it and so on. Even more frustrating is that in many cases the buyer is 100% accountable for their department's performance, yet they can only control a portion of what they need to make them successful. There are many internal struggles that a buyer goes through one of which is competition with their fellow buyers- for space, markdown money, etc. A buyer also has scant resources these days. We're all busy, but let's look at an example to help illustrate what a buyer might be responsible for. Let's say you're the buyer for Men's Tops in a large chain with 1,000 stores. Let's say within the department are several classes- Knits, Wovens, Tees and Sweaters. Now let's say there are 10 suppliers within each class. Each supplier has 5 styles, with 2 colors and 4 sizes in each. That's a total of 40 SKU's per supplier, or 400 SKU's per class. There are 4 classes, so $400 \times 4 = 1,600$ SKU's. Now multiply that by 1,000 stores and you're looking at 1,600,000 SKU-Store combinations that the buyer is responsible for. They've got to manage the process for all their suppliers (40 in this case) as well as the stores. Managing all these expectations and requests from their internal team requires strong time management skills and an even temperament. Layer on top of that the constant calls from suppliers who aren't part of their mix but want to be. The supplier should understand every time they need to communicate with their buyer.



The retail organization has changed over the last 15 years with the Buyer less responsible for the numbers portion of the business. In larger retailers a buyer is paired with a planner and allocator who assists in the accounting factors of the business. In many cases it makes it easier for the buyer, but it means the supplier now has more points of contact at the retailer and must be prepared to correspond intelligently with both. Many of the topics we discuss in later chapters are geared to give the supplier that added knowledge they need to assist the buyer and planner.



Similarly, many buyers have no conception of how much is involved on the production side of the business. They generally see a friendly face that puts product up on their walls, quotes high costs and promises on-time deliveries. Like the buyer, suppliers have their own frustrations and strict time lines to keep the promises they make to the buyer. No small part of their frustration comes from the fact that they are dependent on the retailer to make them successful and the demand for their brand/product dictates how much power (if any) they yield. They have also had to learn completely new skills (analytical retail planning) that is outside of their core competency.

In the manufacturing world, especially the one of overseas production so many things have to go right to be successful. In the apparel world, there are literally hundreds of steps from the picking of cotton to having a shirt nicely packaged and sitting on the retailer's shelf. Buyers generally don't think about all the mundane details that the supplier has to contend with to get their product to market including following all the legal and safety requirements, customs paperwork, booking freight, getting packaging, ticketing and other product marketing materials from third parties and of course, the production itself.

The bottom line is that both parties must strive to understand each other better, and appreciate their perspectives. We have seen in our own business that clients with a truly collaborative relationship with their retail partners are more successful than those that don't. While there are a few cases of successful merchandise programs where the buyer-supplier relationship is combative, the majority of them fail almost immediately.

POS ANALYTICS: DISCIPLINE PAYS DIVIDENDS

Many times when we meet a manufacturer for the first time we'll ask them how they track their business. We usually get a very simple answer- "we do it already". What we've found in reality though is that their definition of "doing it" differs significantly from ours and the manufacturers that do it well- and get the largest benefit from doing it. Looking at chain level sales and sell through on a weekly basis doesn't cut it anymore. Not just to service the retailer, but to ensure that wholesale inventory is more productive and profitable. In an age where data and business intelligence tools are readily available and affordable a manufacturer who has not created an internal discipline for conducting retail analytics is at a competitive disadvantage. This section of the primer outlines our recommendations on creating a roadmap to creating a discipline for retail analytics that yields great dividends. Please note the reports and functions listed are from the ERS tool kit. For a deeper understanding of our tools please visit our website at www.enhancedretailsolutions.com or contact ERS.

1. **Define the scope and goals of retail analysis.** Scope includes the prioritization of what items are to be analyzed, the level of detail, geography, frequency of reporting and timeline for decision making. Goals generally include improved inventory productivity, more accurate forecasting, increased sales and margin and better communication with the retailer. Determine which statistics are required to measure their success. Goals may be different for basic vs. fashion products. We recommend creating weekly sales and inventory plans by item as part of the scope if resources allow. While studying item performance at Chain level provides the basis for tracking trends, it is store level analysis that has proven to yield the greatest results. A key goal of many retailers today is to improve the in-stock % and ensuring that each store has the optimal quantity.
2. **Collect data.** Determine what data to collect based on the statistics that need to be analyzed. The scope you defined may require data points from various sources to be integrated- such as looking at both store and wholesale inventory together.
3. **Set tolerance levels for the key statistics.** Set them based on what would require you to take action- much like an air conditioner goes on or off to maintain a temperature that you set. Tolerance can be different for different types of items. Don't forget about time- define what period of time is enough to constitute a trend.
4. **Develop reports that enable you to track the tolerance levels.** Actionable reports are those that enable you to easily determine if something is wrong based on "triggers" that tip you off like an abnormally high weekly sell through or excessive rate of sale. We also recommend keeping a "report card" for your key items, and labeling them as Stable, Growing or Declining. Base the frequency of reports as defined in Step 1.
5. **Define what actions should be taken when variables are out of tolerance.** For example, you might revise your forecast up by 50% of the current sales trend and buy any additional inventory to maintain that level (30% increase in sales = 15% increase in forecast).
6. **Take action, document and measure its effectiveness.** Many of your recommendations will require action on the part of the retailer. Develop a strategy for presenting your ideas to them that shows a win-win scenario for both retailer and manufacturer. Building the appropriate rapport with them will be imperative. You will want to track what effect your actions had on performance to determine if they are suitable or require redefining. Keeping a journal is highly recommended.

Using Retail Synthesis and Best Practice Reporting to Optimize your Point of Sale Data

Our tools were created to help the manufacturer analyze the business much like the retailer. They also provide the facility to review the sales and inventory position by SKU, by store- an enormous undertaking. Optimizing inventory by SKU, by store also allows you to maximize sales and inventory productivity on the wholesale side. Because wholesale commitments may be based on point of sale performance and trends, the more optimized store sales and inventory are the more productive and profitable your wholesale inventory investment will be. Retail Synthesis is not just a platform for reporting, but a tool kit to help you answer questions and take actions that helps you maximize item performance.

It is best to conceptualize point of sale analysis in 3 phases:

1. Pre-Planning

- Use the *projected* plan in **Item Planner** to build realistic sales, profit and inventory plans on your key items. It can be based on historic sales, or using a sales curve as guidance. A sales curve help plan for the peaks and lulls of business and provide a comparative data set to track trends.
- **Rollout Calculator** can help you check the validity of the retailer's initial set quantities based on different store groupings.
- Build **Sales Curves** using the Last 52 Weeks report (historic sales) and adjusting for calendar shifts, retailer marketing promotions and any other relevant adjustments.

2. In-Season

- *Weekly*

1. The **Weekly Performance Dashboard** is a great starting point each week because it details the most current sales and inventory performance. A quick sort on weeks of supply provides a road map of SKU's that may be over or under inventoried. This report is also a good one to "grade" items based on performance of the key statistics that can be used for prioritizing SKU's in the replenishment or demand planning process.
2. The **4 Week Trend Report** compares sales performance for the last 4 weeks side by side. Watch the weekly unit sales and sell through metrics for trends as well as the average selling price to see if any promotional activity has taken place. Perfect for style level reporting and includes images.
3. The **Opportunities and Liabilities Report** showcases SKU-store combinations that are either under or over inventoried, side by side. It also recaps the quantities and costs. This report has become a favorite management tool among buyers.
4. For items that have a long life and can be fulfilled in season, the **Replenishment Advisor** provides recommended ship quantities by store based on a variety of parameters. It provides a great comparison to the retailer's recommended model stock by store. If the retailer does not intend to fulfill orders, the quantities on the Replenishment Advisor report also serve as a record of potential lost sales.
5. Update the active plan in **Item Planner** and it will provide a variety of comparisons (against plan, last year), project margin gains or shortfalls and predict future sales. For items not meeting plan, adjustments to the original plan can provide "what-if" scenarios for specific actions. For instance, see how performance would be affected by recommending an earlier than planned markdown, or cutting receipts.
6. For items with a long life cycle (greater than 52 weeks) the **Comparison Report** in Retail Synthesis compares the current week's sales (units and dollars), sell through, inventory and store count to the same fiscal week last year (or any other time period).

- *After the first 4-9 Weeks*

1. After the first few weeks of selling, the **Weekly Analyst Report** provides a deeper review of performance and Store Execution Statistics. It helps define if the current rate of sale will increase or decrease (based on whether stores are in stock or not). The "average sales per store per week" statistic can be used to project out future sales by multiplying it by the store count. Some statistics are based on just those stores that have registered a sale- this is important because it provides the performance and stock position for only active (have sold at least 1 unit) stores. Based on thresholds set for weekly and year to date sell through, the report documents how many stores meet those criteria. So if an item should be 60% sold through, and the report shows that only 200 out of 500 stores meet those criteria, a problem may exist.
2. The **Store Statistics Report Set** provides the store level data for each of the execution statistics listed on the Weekly Analyst report. Depending on the statistic, they provide a way to jump start action in fixing the most basic of problems (stores with no sales or stores that are sold out).
3. The **Store Ranking Report and Map** defines the top and bottom stores based on user-defined criteria. It helps determine if geography is playing a role in sales performance. The goal is to optimize the overall distribution of an item across the chain. Helping the retailer allocate more efficiently goes a long way in not only increasing sales and margin, but the ability to predict wholesale requirements. It is also a quick way to prioritize which stores to take action on first.
4. Perfect for tracking performance by brand, license, category or specific attribute, **Retail Synthesis** provides an ad-hoc open reporting platform. Users can "drill" from one level to the next. For example start by viewing total company sales, then drill to brand, then style and finally SKU. While Best Practices provides reports set up with specific tasks in mind, Retail Synthesis allows the user to probe through all their data and look for abnormalities. It is a great way to create exception reports because a filter can be applied to any text or numeric field.
5. For SKU intensive programs, the **Sales-On Hand Ratio Report** highlights variances in inventory ownership to sales. This is also important from a wholesale ownership point of view because a shift to selling one size or color from the original plan may necessitate changes in production. This report can also be used to help "grade" SKU's to ensure the top selling sizes and colors get the attention they deserve.
6. Periodically run the **Demographic Profiler** to determine if a specific demographic characteristic plays a role in sales performance. Opportunities exist to optimize the store distribution based on demographics (recommend stores not on current distribution, but match the profile of top selling stores).

3. Post Season

- Detect and quantify missed business by running the **Lost Sales Report** for key items. It also helps document low inventory and high turnover by store to improve future item performance. Recommendations for allocation by store for similar/future items can be made using the report.
- The **Related Performance Report** shows how one item performs in relation to others within a given store. This is useful for helping the retailer assort silhouettes, colors or sizes based on a store's past performance.

Review the chart on page 10 for a recap.

If a key goal is improving wholesale inventory productivity, while maintaining high in-stock levels at store level, the next step involves integrating your point of sale analysis with sales prediction tools.

Demand Planning

Optimizing store sales and inventory provides the foundation for more accurate prediction of future wholesale sales and production needs. The more knowledge you have about each item and its relative health (store in-stock, rate of sale consistency, etc.) the better chance you have to improve inventory productivity. Just as analyzing point of sale data requires a specific discipline, Demand Planning and Forecasting requires a similar routine. Use these 8 steps as a guide:

1. Define Parameters

- **Sales Curve**- The curve represents the expected peaks and lulls in business by week or month. The sum of each period (either weeks or months) should add up to 100%. It is generally based on historic sales and then adjusted for calendar shifts and promotional activity. Assigning each item to the appropriate curve is essential. It ensures that inventory is built up or reduced at the right time. Curves can and should be adjusted as new information is learned from conditions that effect sales performance like changes in door count, new promotions, additions or subtraction to the assortment, etc.
- **Lead Time**- This is the amount of time it takes to have merchandise ready to ship to the retailer. Orders cannot be placed before the date from which inventory is ready.
- **Weeks of Supply Model**- This can be looked at from both the retail and wholesale point of view. It is the number of weeks' worth of inventory allowed at any given time. If the weeks of supply model is 12 weeks it means the sum of the next 12 week's sales estimates for that item is the quantity allowed on hand now.
- **Min Quantity**- This is the minimum quantity in units that should be maintained of this SKU at each store. This is generally used for merchandise programs that have fixtures that need to be filled to meet a presentation standard. Some high velocity SKU's may have higher Min Quantities than other SKU's because they will need to be replenished at store level more frequently. Measuring how many stores are below the minimum quantity helps quantify the potential of lost sales. It also indicates that the overall stock position may be distorted. For example if the weeks of supply for a SKU is 18 weeks, but half of the stores are below the minimum quantity, it also means half the stores have too much inventory and inventory is not balanced.
- **Max Quantity**- This is the maximum quantity in units that a store should maintain for a given SKU. Measuring how many stores have exceeded the maximum quantity may indicate the extent to which unproductive inventory exists.
- **Time Period**- Since the forecast is based on historic sales, the time frame selected can play a role in accuracy. For example, if a trend occurred in just the last 3 weeks, using the last 40 weeks as the basis may not be accurate. However using just the last 6 weeks will take into account the recent trends and yield a more accurate estimate.
- **Manual Adjustment Factor**- Outside factors may also effect sales performance like changes in the assortment plan, increase or decrease in store count, etc. For that reason a "manual" adjustment factor should be used to spike the basis of predicting sales up or down. The amount of adjustment can be determined based on pre-defined business rules (see Step 3 below).

2. Identify Key Factors Effecting Performance

- **Consistency in Rate of Sale**- The forecast is based on sales and may need to be adjusted up or down based on how realistic they are. If it has been determined that business is being missed due to poor inventory levels, we will want to adjust the forecast up, etc.
- **Accuracy of Sales Curve**- At least on a monthly basis, compare the actual percent of sales for each period against the selected sales curve. Large variations (greater than 5%) may indicate the need to adjust the sales curve's future periods.

- **Changes in Store Count-** An increase or decrease in store count will increase or decrease inventory and sales to some degree. From the POS analysis, review average weekly sales units per store per week and multiply by the increase/decrease in stores to estimate the new quantities.
- **Above/Below Min/Max Quantity-** These key parameters help identify whether an item's stock position is balanced or not. Adjustment should be made by store to balance it. This information is also helpful in determining if additional needs are required to make up for lost sales.
- **Comparison to Last Year and Projected Plan-** If item plans exist, the sales or on hand variance from plan or last year may indicate a need to manually adjust the forecast. If the quantities are lower or higher yet there is no significant variance in the sales curve it may indicate more traffic at the store or an assortment that favors your item.
- **Changes in Pricing and Promotion-** Pricing can play a large role in rate of sale and this would be another case to apply a pre-defined business rule (see Step 3 below).
- **Canceled Shipments/Orders-** If shipments were missed or future shipments will be late there is a possibility for lost sales.

3. Define Business Rules

- Develop logic based around the analysis of Key Factors to make the appropriate changes to the forecast. Create a chart defining the rules and adapt as business conditions necessitate. See chart on page 7 for an example.

4. Rank SKU's in terms of priority

- Using your POS analysis, rank SKU's based on performance or that meet specific exception criteria (weeks of supply too low, etc.).
- Maintain a list of SKU's and assign "Grades" (A=Top Quartile, B= 2nd Quartile, C= 3rd Quartile, D= Bottom Quartile). The list can be updated as the health of a SKU improves or declines.

5. Use POS Tools to Estimate Retail Sales Potential

- The **Rolling Forecast** module from IntelligentRetail.net incorporates the parameters discussed in Step 1 to calculate item potential and estimate weekly or monthly sales. Assign the appropriate parameters to each SKU and save them in the database. Make any adjustments based on your business rules in Step 3.

6. Identify Multiple Comparative Sources

- **Retailer's Forecast-** It is very beneficial to compare the system generated estimates with the retailer's estimates. Any significant variances should be discussed, especially if an item is on an auto replenishment system.
- **Shipment Forecast-** Different retailers use different ordering methodologies. Some use the "sell 1, ship 1" mentality while others simply write orders against future sales (ship curve). When using a POS forecast there may be a time lag between the date of the estimated sales and when the shipment is made for that date. In many cases the shipment is made 20-30 days in advance. Inject this logic into your open to buy calculations and adjust any of the parameters in Step 1 as needed.

7. Move POS Forecast to ERP

- The Sales by Month tab of the Rolling Forecast provides the input for the ATS application in various ERP systems.

8. Forecast Future Shipments

- Use formulas in ATS template to calculate inventory needs.

ERS RECOMMENDED REPORTS AND THEIR INTENDED USES

ERS Best Practice Report	Frequency	Description/Intended Uses
Item Planner Web- Projected Plan	Pre-Season	Create weekly/monthly sales and inventory plans.
Item Planner Web- Active Plan	Weekly/Monthly	Track actuals against plan and last year to monitor trends.
Rollout Calculator	Pre-Season	Calculate initial set quantities based on different store groups.
Manage Sales Curves	As Needed	Create and update sales curves
Weekly Performance Dashboard	Weekly	Overview of performance last week and year to date. Great for ranking items based on a variety of parameters including Age, Weeks On Hand, Sell Through, etc.
4 Week Trend Report	Weekly	Compares sales, sell through and average selling price over the last 4 weeks. Great style level report with images.
Opportunities and Liabilities	Weekly	Showcases under and over inventoried SKU-Store combinations side by side.
Replenishment Advisor	As Needed	Calculates at once needs by store, by SKU. Helps balance inventory across all stores.
Comparison Report	Weekly	Compare performance last week this year against same week last year- sales, inventory, sell through and store count.
Weekly Analyst	After 4-9 Weeks	Detailed review of SKU performance including store execution statistics. Vital to uncovering the true in-stock position.
Stores With On Hand, No Sales	After 4-9 Weeks	Documents stores that have not executed and have unproductive inventory.
Stores with No On Hand	After 4-9 Weeks	Documents stores that are sold out and not meeting in-stock requirements.
Store Ranking/Map	After 4-9 Weeks	Prioritizes stores that require attention in balancing inventory and improving allocation based on performance.
Retail Synthesis	As Needed	Ad-hoc and exception based reporting to help you prioritize those SKU's that need the most attention.
Sales-On Hand Ratios	After 4-9 Weeks	Documents the variance in ratios between inventory ownership and rate of sale for SKU's within a program.
Demographic Profiler	After 4-9 Weeks	Determines if a specific demographic characteristic effects sales performance. Further optimizes the assortment across the chain.
Rolling Forecast	Weekly/Monthly	Estimates future sales and inventory requirements by SKU.
Lost Sales/Turnover	Post-Season	Estimates lost sales by store based on low in-stocks, documents stock to sales ratio for a SKU by store.
Related Performance	Post-Season	Documents the % of sales each SKU in a group represents across each store.

Chart of Sample Business Rules and Defined Actions:

Key Factor	Change/Variance	Action
Consistency in Rate of Sale	Lost sales 10%	Increase item potential by 5%
Accuracy of Sales Curve	Last 2 months -8%	Decrease last 2 month's curve % by 4% and increase the rest of the curve by flattening out the difference across the remaining months.
Change in Store Count	Adding 100 Stores	Increase estimates by multiplying average units per store per week X 100
Change in Store Count	Removing 40 Stores	Decrease estimates by multiplying average units per store per week X 40
# Stores Below Min Qty	100	To appropriate shipment add the quantity (100 x difference from Min Qty in each store)
On Hand Change from LY	-12%	Check with retailer to determine if WOS model was decreased if store count is same. Lower WOS model.
Comparison to Plan	Last 3 months +15% over Plan	Shorten the Time Period used to forecast sales.
Price Change	Last month +45% over Plan	Revise forward estimates +30%

EXAMPLE OF WEEKLY TRACKING REPORTS

Your discipline of analysis begins with a basic weekly tracking report. Here are examples of 3 reports that are a good start for understanding how your items are performing at retail.

The first report allows you to check trends week to week for the last 3 weeks and on a year to date basis. It includes the on hand position and sell through for the most current week as well as average weekly sales units and dollars, store level productivity and profitability. Adding in last year offers a comparison to whether your business is up or down from period to period. You can answer a lot of questions with this report.

DESCRIPTION	UNITS							DOLLARS									
	WK 27 8/6/2011	WK 28 8/13/2011	WK 29 8/20/2011	YTD TOTAL	WK 29 OH	WK 29 ST%	YTD ST%	# STORES	WK 29 PER STORE	WK 27 8/6/2011	WK 28 8/13/2011	WK 29 8/20/2011	YTD TOTAL	WK 29 AUR	WK 29 Est. GM%	YTD AUR	YTD Est. GM%
Item 1	727	594	590	18672	8312	6.6%	69.2%	280	2.1	\$5,760	\$4,706	\$4,674	\$147,932	\$7.92	44.5%	\$7.92	44.5%
Item 2	162	204	177	4318	6120	2.8%	41.4%	279	0.6	\$1,280	\$1,612	\$1,398	\$34,111	\$7.90	46.2%	\$7.90	46.2%
Item 3	141	119	134	3665	6266	2.1%	36.9%	279	0.5	\$976	\$824	\$928	\$25,373	\$6.92	36.4%	\$6.92	36.4%
Item 4	58	80	89	2287	6551	1.3%	25.9%	279	0.3	\$403	\$556	\$619	\$15,902	\$6.95	33.1%	\$6.95	33.1%
Item 5	70	104	94	3085	4080	2.3%	43.1%	279	0.3	\$554	\$823	\$744	\$24,412	\$7.91	44.4%	\$7.91	44.4%
Item 6	417	492	481	10875	3184	13.1%	77.4%	280	1.7	\$2,457	\$2,899	\$2,834	\$64,081	\$5.89	49.3%	\$5.89	49.3%
Item 7	163	145	96	3382	2402	3.8%	58.5%	280	0.3	\$960	\$854	\$566	\$19,928	\$5.89	49.3%	\$5.89	49.3%
Item 8	78	72	80	2072	6362	1.2%	24.6%	280	0.3	\$543	\$501	\$556	\$14,412	\$6.96	39.6%	\$6.96	39.6%
Item 9	105	109	71	2883	5961	1.2%	32.6%	279	0.3	\$727	\$754	\$491	\$19,948	\$6.92	39.3%	\$6.92	39.3%
Item 10	159	103	140	3684	5873	2.3%	38.5%	278	0.5	\$1,114	\$722	\$981	\$25,818	\$7.01	40.8%	\$7.01	40.8%
Item 11	51	61	37	1624	5693	0.6%	22.2%	280	0.1	\$355	\$424	\$257	\$11,292	\$6.95	33.1%	\$6.95	33.1%
Item 12	62	86	57	1968	3304	1.7%	37.3%	282	0.2	\$431	\$598	\$396	\$13,684	\$6.95	33.1%	\$6.95	33.1%
Item 13	146	132	141	3844	4552	3.0%	45.8%	280	0.5	\$1,011	\$914	\$976	\$26,612	\$6.92	36.4%	\$6.92	36.4%
Item 14	206	213	175	5633	5460	3.1%	50.8%	282	0.6	\$1,426	\$1,475	\$1,212	\$38,998	\$6.92	36.4%	\$6.92	36.4%
TOTAL Category 1	2545	2514	2362	67992	74120	3.1%	47.8%	8.4		\$17,997	\$17,662	\$16,633	\$482,504	\$7.04	42.7%	\$7.10	42.4%
GRAND TOTAL	2545	2514	2362	67992	74120	3.1%	47.8%	8.4		\$17,997	\$17,662	\$16,633	\$482,504	\$7.04	42.7%	\$7.10	42.4%
LY TOTAL 2011	2337	2659	2654	34715.8	83230	3.1%				\$16,788	\$19,153	\$18,900	\$252,045				
	9%	-5%	-11%	96%	-11%					7%	-8%	-12%	91%				

The second report doesn't compare week to week but includes more statistics and the integration of wholesale inventory. This enables you to review retailer and wholesaler inventory for an item together on one report.

Item_desc	Item Image	No of Wks	On Hand	WOS	Unit Sales	ST%	Av Wk Units	Avg Units Store(ChainLevel)	Unit Sales Rank	ATS QTY	Production Qty	Est. Store Count
S400 WHT QSS		17	8,627	7.89	18,600	68.3%	1,094.12	18.20	1	3,382	8,280	1,022
S400 WHT SPC		17	10,148	11.70	14,743	59.2%	867.24	14.40	2	14	16,700	1,024
S400 GRY QSS		17	5,727	6.78	14,353	71.5%	844.29	14.04	3	0	11,160	1,022
S400 TPE QSS		17	6,224	7.44	14,228	69.6%	836.94	13.92	4	3,707	5,380	1,022
S400 WHT TSS		17	7,965	11.48	11,794	59.7%	693.76	11.55	5	0	16,484	1,021

The third report gives you more store execution and productivity statistics that become the basis for your door level analysis. We believe door level analysis provides the greatest opportunity to optimize inventory and improve sell through because you are

pinpointing the opportunity and liability by store. By highlighting which stores are sold out or that have not generated any sales after a significant period of time you can communicate these facts to the buyer and recommend the appropriate actions.

Detail Report		Summary Report		
				Total
Fiscal WkYr	4612	4612	4612	
Retailer Name	USA Club	USA Club	USA Club	
Item Description	MARSHMALLOW	FAUX FUR	FEATHER	
Color	P=36		P=54	
Size	60X70	60X70	60X70	
Unit Cost	\$1.00	\$1.00	\$1.00	
Unit Retail	\$1.00	\$1.00	\$1.00	
Initial MU%	0%	0%	0%	
# Weeks of Sales	39.00	24.00	39.00	
# Weeks of Activity	39	12	39	
Inventory Statistics				
On Hand	48096	16616	98271	162983
In Transit	0	0	0	0
In Warehouse	0	0	0	0
On Order	3026	1056	648	1056
Weeks of Supply	2.48	4.97	2.74	
Weeks of Supply (with Sales)	2.46	4.80	2.74	
Weeks of Supply (with On Order)	2.64	5.28	2.76	
Estimated LTD Shipped	201534	37689	515826	755049
Sales Statistics				
Current Week Sales \$	\$386491.00	\$73197.00	\$465019.00	\$924707.58
Current Week Sales	19360	3344	35896	58600
Current Week ST %	28.70%	16.75%	26.75%	5.58%
Current Week AUR	\$19.96	\$21.89	\$12.95	\$18.27
Current Week GM \$	0.95	0.95	0.92	
Current Week GM %	0.00%	0.00%	0.00%	
Current 4 Weeks Sales \$	1185578.81	217853.75	1709001.81	
Current 4 Weeks Sales	59377	9933	131794	201104
Current 4 Weeks ST %	19.77%	12.22%	20.01%	
Current 4 Weeks AUR	19.97	21.93	12.97	
Current 4 Weeks GM \$	0.95	0.95	0.92	
Current 4 Weeks GM %	0.00%	0.00%	0.00%	
Year To Date Sales \$	\$3064295.00	\$462517.00	\$5255413.00	\$8782225.00
Year To Date Sales	153438	21073	417555	592066
Year To Date ST %	14.18%	9.40%	12.16%	
Year To Date AUR	\$19.97	\$21.95	\$12.59	\$18.17
Year To Date GM \$	0.95	0.95	0.92	
Year To Date GM %	0.00%	0.00%	0.00%	
Av. Weekly Sales \$	\$78572.00	\$19272.00	\$134754.00	\$232598.00
Av. Weekly Sales	3934.31	878.04	10706.54	15519
Av. Sls \$/Store/Wk(All)	129.44	62.77	221.27	
Av. Sls/Store/Wk(All)	6.48	2.86	17.58	
Av. Sls \$ /Store/Wk(with Sales)	130.52	66.92	305.57	
Av. Sls/Store/Wk(with Sales)	6.54	3.05	24.28	
Store Execution Statistics				
# Stores	607	307	609	
# Stores with No OH (YTD Sales)	13(72)	2(3)	302(3882)	
# Stores with OH & No Sls YTD (OH)	5(387)	10(497)	2(2)	
# Stores with Sales YTD	607	300	602	
# Stores with On Order	46	21	11	

The benefit to mining store level data is to pinpoint opportunities and liabilities that exist with the inventory allocation.

Store	Location	Zip	On Hand	On Order	LTD Sales
6344	MARSHON PLAZA, IA	50311	0	0	141
4973	DUBUQUE, IA	52002	0	0	346
6462	AUGUSTA, ME	04330	0	144	144
4805	BILLINGS, MT	59101	0	108	185
8286	WACO, TX	76705	0	0	294
6383	SALISBURY, MD	21801	0	0	579
6326	REYNOLDSBURG, OH	43068	0	144	168
6217	MIAMI, FL	33126	0	36	626
8238	DAVENPORT, IA	52807	0	0	264
8152	SOUTH POINT, OH	45680	0	0	576
Total			0	432	4543

STORE LEVEL REVIEW

With the rise of Omnichannel retailing it is more paramount than ever to ensure brick and mortar stores are properly inventoried and monitored closely. Studying aggregated data may be good for providing general trend information and is helpful for planning bulk inventory projections. However, store level data reveals deeper insight and paints a better picture of the truth. For example, an item's overall sell through could be very low, yet a group of stores may be completely sold out. That can't be seen without store level data. The key to maximizing sales and profit is ensuring that each store has the appropriate amount of inventory- at the right time. Companies spend millions on systems that help with automatic replenishment at store level- but even the best ones can be slow to catch a trend or build inventory up to that magical point where sales can be maximized. Especially on new items, an early study at store level can provide a road map to increase sales and balance inventory before any problems arise. Generally, inventory is set based on models- which could be based on history or presentation standards. That practice does work well in general, but as the retail landscape changes and more business goes the way of the web, those models may need to be reviewed.

Obtaining store level data depends on how retailers provide the information. An EDI 852 document works well- because it is consistent and can be automated. You'll need some tools or subscribe to a service to translate the data into something usable (ERS can help). Web portals may also offer the ability to download data at store level with varying degrees of ease. However it is obtained, the goal is to receive it on a consistent basis (usually weekly) and understand what is included and what isn't (returns, no sales, etc.).

This store level review can help answer many questions including:

1. Do specific attributes (fabric, color, size, price point, etc.) sell better in different geographic regions?
2. Which geographic regions are performing the best or the worst?
3. What recommendations can be made to balance inventory across the chain?
4. Do we have a high rate of returns?
5. What does the ecommerce business look like?

Please refer to our sample store level analysis to follow along with the review. The image here is a condensed version and does not contain the full view of the dataset.

Great Item - Last 3 Weeks Sales		Blue				Green				Yellow				White				Total				OH HISTORY			% DIFF
		On Hand	Unit Sales	ST%	Dol \$ Sales	On Hand	Unit Sales	ST%	Dol \$ Sales	On Hand	Unit Sales	ST%	Dol \$ Sales	On Hand	Unit Sales	ST%	Dol \$ Sales	On Hand	Unit Sales	ST%	Dol \$ Sales	3 WKS Ago	2 WKS Ago	1 WK Ago	
Store No.	Location																								
1	PORT CHESTER, NY	2	1	33%	\$60	4	2	33%	\$200	11	3	21%	\$180	3	1	25%	\$100	20	7	26%	\$540	16	18	20	↑ 25%
2	MERIDIAN, ID	4	0	0%	\$0	4	2	33%	\$200	5	0	0%	\$0	3	4	57%	\$400	16	6	27%	\$600	14	13	16	↑ 14%
3	SAN LUIS OBISPO, CA	2	3	60%	\$180	5	0	0%	\$0	3	1	25%	\$60	5	1	17%	\$100	15	5	25%	\$340	13	13	15	↑ 15%
4	PHOENIX, AZ	4	0	0%	\$0	5	1	17%	\$100	1	2	67%	\$120	5	0	0%	\$0	15	3	17%	\$220	18	15	15	↓ -17%
5	SANTA FE, NM	1	4	80%	\$240	1	1	50%	\$100	2	0	0%	\$0	10	1	9%	\$100	14	6	30%	\$440	14	14	14	→ 0%
6	CANOGA PARK, CA	3	1	25%	\$60	4	4	50%	\$400	4	2	33%	\$120	2	2	50%	\$200	13	9	41%	\$780	15	15	13	↓ -13%
7	CULVER CITY, CA	3	0	0%	\$0	4	0	0%	\$0	2	2	50%	\$120	4	0	0%	\$0	13	2	13%	\$120	13	13	13	→ 0%
8	MEMPHIS, TN	4	0	0%	\$0	4	0	0%	\$0	2	2	50%	\$120	2	0	0%	\$0	12	2	14%	\$120	11	10	12	↑ 9%
9	EDGEWATER, NJ	3	0	0%	\$0	2	0	0%	\$0	3	2	40%	\$120	3	3	50%	\$300	11	5	31%	\$420	12	12	11	↓ -8%
10	SHAWNEE, KS	2	2	50%	\$120	2	0	0%	\$0	2	0	0%	\$0	5	0	0%	\$0	11	2	15%	\$120	9	9	11	↑ 22%
11	ARLINGTON, VA	4	2	33%	\$120	1	1	50%	\$100	3	1	25%	\$60	3	3	50%	\$300	11	7	39%	\$580	11	11	11	→ 0%
12	CARLSBAD, CA	3	1	25%	\$60	6	3	33%	\$300	1	1	50%	\$60	1	1	50%	\$100	11	6	35%	\$520	8	7	11	↑ 38%
13	SELMA, TX	2	0	0%	\$0	2	2	50%	\$200	5	-1	-25%	(\$60)	2	0	0%	\$0	11	1	8%	\$140	11	11	11	→ 0%
14	SAN DIEGO, CA	2	0	0%	\$0	1	2	67%	\$200	6	3	33%	\$180	1	1	50%	\$100	10	6	38%	\$480	11	12	10	↓ -9%
15	DALLAS, TX	3	0	0%	\$0	2	4	67%	\$400	4	1	20%	\$60	1	1	50%	\$100	10	6	38%	\$560	10	10	10	→ 0%
16	PASADENA, CA	2	0	0%	\$0	3	0	0%	\$0	3	0	0%	\$0	2	0	0%	\$0	10	0	0%	\$0	12	12	10	↓ -17%
513	OCEANSIDE, NY	0	0	0%	\$0	-1	0	0%	\$0	0	0	0%	\$0	0	0	0%	\$0	-1	0	0%	\$0	-1	-1	-1	→ 0%
514	MASON, OH	-1	0	0%	\$0	0	1	100%	\$100	0	0	0%	\$0	0	0	0%	\$0	-1	1	0%	\$100	-1	-1	-1	→ 0%
515	VENTURA, CA	-1	1	0%	\$60	0	0	0%	\$0	0	0	0%	\$0	0	0	0%	\$0	-1	1	0%	\$60	-1	-1	-1	→ 0%
516	JOHNSTOWN, PA	0	0	0%	\$0	0	0	0%	\$0	0	0	0%	\$0	-1	1	0%	\$100	-1	1	0%	\$100	0	0	-1	→ 0%
517	WINTER GARDEN, FL	0	0	0%	\$0	0	0	0%	\$0	-1	0	0%	\$0	0	0	0%	\$0	-1	0	0%	\$0	-1	-1	-1	→ 0%
Total B & M Stores		461	232	33%	\$13,920	498	240	33%	\$24,000	501	264	35%	\$15,840	530	216	29%	\$21,600	1,990	952	32%	\$75,360	2062	1990	2088	↑ 1%
900	ECOMM DC 1	6	13	68%	\$780	5	16	76%	\$1,600	4	5	56%	\$300	7	16	70%	\$1,600	22	50	69%	\$4,280	15	15	22	↑ 47%
901	ECOMM DC 2	2	0	0%	\$0	4	2	33%	\$200	2	2	50%	\$120	2	3	60%	\$300	10	7	41%	\$620	4	10	10	↑ 150%
902	ECOMM DC 3	2	0	0%	\$0	3	1	25%	\$100	2	0	0%	\$0	2	0	0%	\$0	9	1	10%	\$100	5	5	9	↑ 80%
903	ECOMM DC 4	2	0	0%	\$0	3	0	0%	\$0	2	0	0%	\$0	3	0	0%	\$0	10	0	0%	\$0	2	2	10	↑ 400%
904	ECOMM DC 5	2	1	33%	\$60	2	0	0%	\$0	2	0	0%	\$0	2	0	0%	\$0	8	1	11%	\$60	8	8	8	→ 0%
905	ECOMM DC 6	0	0	0%	\$0	2	0	0%	\$0	0	0	0%	\$0	2	0	0%	\$0	4	0	0%	\$0	0	4	4	→ 0%
906	ECOMM DC 7	2	0	0%	\$0	1	0	0%	\$0	2	0	0%	\$0	1	0	0%	\$0	6	0	0%	\$0	6	6	6	→ 0%
907	ECOMM DC 8	2	0	0%	\$0	2	0	0%	\$0	2	0	0%	\$0	0	0	0%	\$0	6	0	0%	\$0	6	6	6	→ 0%
908	ECOMM DC 9	1	2	67%	\$120	0	0	0%	\$0	0	2	100%	\$120	0	2	100%	\$200	1	6	86%	\$440	1	1	1	→ 0%
909	ECOMM DC 10	0	1	100%	\$60	1	0	0%	\$0	0	0	0%	\$0	0	0	0%	\$0	1	1	50%	\$60	2	3	1	↓ -50%
Total eCommerce		19	17	47%	\$1,020	23	19	45%	\$1,900	16	9	36%	\$540	19	21	53%	\$2,100	77	66	46%	\$5,560	49	60	180	↑ 267%
Grand Total		480	249	34%	\$14,940	521	259	33%	\$25,900	517	273	35%	\$16,380	549	237	30%	\$23,700	2,067	1,018	33%	\$80,920	2111	2050	2268	↑ 7%

We start by organizing our data by color, by store and adding a total. We also separated brick and mortar stores from ecommerce (many retailers provide their ecommerce sales as a store number in their data set). This example shows simple performance metrics- unit and dollar sales, on hand inventory and sell through percent. We sorted it on Total On Hand descending because we want to understand where the bulk of our investment is. Of course, it could be sorted in many ways for comparison and learning purposes.

We then added a 3-week history of the on-hand inventory to get a sense of how stores are being replenished. The % Diff column indicates which stores' inventory went up or down or didn't change.

Looking across at any given store you can see how they sold each color- in some cases (ex. store 4) you can see they have an overall sell through of 17%, but they haven't sold any Blue or White. Is it an execution issue (not presented on sales floor) or an indication that the consumers in that store dislike those colorations? We can also see that their inventory has gone down over the last 3 weeks. They may be over model, or they may not be replenishing the colors that are selling. Adding statistics with counts of stores with no sales, no inventory, below model stock are helpful to determine the overall health of the business. What percentage of the stores are out of stock? Is there too much inventory? These are the types of questions that should be asked when reviewing the data to help determine what actions should be taken.

For example, if a store is out of a color, a reorder may be required. If stores are constantly out of stock, the model needs to be changed or the frequency of replenishment needs to be increased. Or maybe sell through is very low and they are burdened with too much inventory. Perhaps inventory can be re-allocated to nearby stores.

Ranking stores can also be helpful in prioritizing opportunities. Determining how to rank depends on your objectives. In our case we want to make sure the stores with the best turnover and sales are constantly replenished so we can maximize sales and profit. Conversely, we wanted to identify low ranked stores that drag down performance and waste inventory. First, we rank stores on each of the key metrics- units sold, revenue and sell through. Then we blend the rankings into a composite- weighting each based on our goals. In this example we weight sell through the highest at 50%- and apply 25% to units and dollars sold. In our view that provides a balanced view.

Store Ranking Example:

Store No.	Location	Blue				Green				Yellow				White				Total				25% Sales Rank	50% ST% Rank	25% Sales \$ Rank	Composite Rank	Final Rank
		BBB On Hand	Unit Sales	ST%	Dol \$ Sales	BBB On Hand	Unit Sales	ST%	Dol \$ Sales	BBB On Hand	Unit Sales	ST%	Dol \$ Sales	BBB On Hand	Unit Sales	ST%	Dol \$ Sales	BBB On Hand	Unit Sales	ST%	Dol \$ Sales					
653	City, St	0	20	100%	\$1,200	0	28	100%	\$2,800	0	0	0%	\$0	0	24	100%	\$2,400	0	72	100%	\$6,399	1	1	1	1	1
655	City, St	0	1	100%	\$60	0	13	100%	\$1,300	0	4	100%	\$240	0	0	0%	\$0	0	18	100%	\$1,600	3	1	3	2	2
694	City, St	0	0	0%	\$0	0	14	100%	\$1,400	0	3	100%	\$180	0	0	0%	\$0	0	17	100%	\$1,580	4	1	4	3	3
124	City, St	0	0	0%	\$0	0	0	0%	\$0	0	10	100%	\$600	0	0	0%	\$0	0	10	100%	\$600	7	1	18	7	4
43	City, St	0	0	0%	\$0	0	4	100%	\$400	0	4	100%	\$240	0	0	0%	\$0	0	8	100%	\$640	14	1	12	7	5
328	City, St	0	4	100%	\$240	0	0	0%	\$0	0	2	100%	\$120	0	2	100%	\$200	0	8	100%	\$560	14	1	23	10	6
62	City, St	0	2	100%	\$120	-1	3	150%	\$300	0	1	100%	\$60	1	1	50%	\$100	0	7	100%	\$580	20	1	21	11	7
280	City, St	0	0	0%	\$0	0	2	100%	\$200	0	0	0%	\$0	0	2	100%	\$200	0	4	100%	\$400	47	1	41	23	8
368	City, St	0	1	100%	\$60	0	1	100%	\$100	0	1	100%	\$60	0	1	100%	\$100	0	4	100%	\$320	47	1	57	27	9
5	City, St	0	0	0%	\$0	0	0	0%	\$0	0	2	100%	\$120	0	2	100%	\$200	0	4	100%	\$320	47	1	57	27	10
583	City, St	0	0	0%	\$0	0	1	100%	\$100	0	2	100%	\$120	0	1	100%	\$100	0	4	100%	\$320	47	1	57	27	11
255	City, St	0	3	100%	\$180	2	1	33%	\$100	-1	4	133%	\$240	1	1	50%	\$100	2	9	82%	\$620	9	48	13	30	12
2	City, St	3	10	77%	\$600	5	9	64%	\$900	3	2	40%	\$120	4	9	69%	\$900	15	30	67%	\$2,520	2	67	2	35	13
305	City, St	2	2	50%	\$120	1	1	50%	\$100	0	5	100%	\$300	2	2	50%	\$200	5	10	67%	\$720	7	67	10	38	14
535	City, St	0	0	0%	\$0	0	1	100%	\$100	0	1	100%	\$60	0	1	100%	\$100	0	3	100%	\$260	75	1	75	38	15
292	City, St	0	2	100%	\$120	0	2	100%	\$200	1	1	50%	\$60	0	1	100%	\$100	1	6	86%	\$480	31	46	32	39	16
52	City, St	1	2	67%	\$120	0	0	0%	\$0	0	2	100%	\$120	0	2	100%	\$200	1	6	86%	\$440	31	46	36	40	17
380	City, St	0	2	100%	\$120	1	1	50%	\$100	2	0	0%	\$0	0	4	100%	\$400	3	7	70%	\$620	20	66	13	41	18
263	City, St	0	4	100%	\$240	2	1	33%	\$100	1	1	50%	\$60	1	2	67%	\$200	4	8	67%	\$600	14	67	18	42	19
5	City, St	0	4	100%	\$240	0	1	100%	\$100	1	1	50%	\$60	1	1	50%	\$100	2	7	78%	\$500	20	58	31	42	20

Grouping stores can also help in determining broad geographic or demographic trends. For example, rolling performance up by state or territory might show preferences for one attribute over another (like color). That helps develop products for specific markets or ensure allocations of different products are focused on the stores that have the best chance of selling to it. Demographic data (available from the US Census Bureau) can also be merged with store level data at city, zip code or state level. This provides a general overview of who the consumer is- without using and individual's sensitive or private data. In this example, we look at the top and bottom 10% selling stores. You can see that the top 10% of stores are in communities with a high Hispanic and high-income population.

Demographic Overview of Our Data Set (Linking Store Location at Zip Code Level:

DESC	STORE COUNT	MEDIAN AGE	WHITE	AF-AM	ASIAN	HISPANIC	MARRIED	KIDS < 18	OWN HOME	BACH DEGREE	HHOLD INCOME
Top 10	48	33.64	78.28 %	4.48 %	6.30 %	18.98 %	42.54 %	32.70 %	56.27 %	40.56 %	\$57,671.82
Bottom 10	48	35.41	78.69 %	7.63 %	5.10 %	10.76 %	45.82 %	33.83 %	64.90 %	28.96 %	\$49,618.47
Av. of All:	484	31.49	78.33 %	7.07 %	5.84 %	12.84 %	45.21 %	34.44 %	64.48 %	34.55 %	\$53,679.34
US Average		35.15	74.03 %	12.63 %	4.12 %	14.71 %	43.81 %	34.67 %	64.77 %	25.77 %	\$45,718.80

This can also be visualized on a map- showing the top and bottom stores in green and red respectively. Southern California looks good, Northern Florida does not. The larger circles represent the strength of a selected demographic trait- in this case income level. Areas with a large green or purple circle are higher income levels while areas with a large yellow or red circle are lower income.



Maps are also very useful if you are dealing with a very large data set. For example, Walgreens has over 8,000 stores, so combing through store level data is going to be hard. Using widely available map tools can help point out performance visually. Plotting different statistics can prioritize where to focus your energy.

LEVERAGING RETAIL DATA WITH AUGMENTED INTELLIGENCE

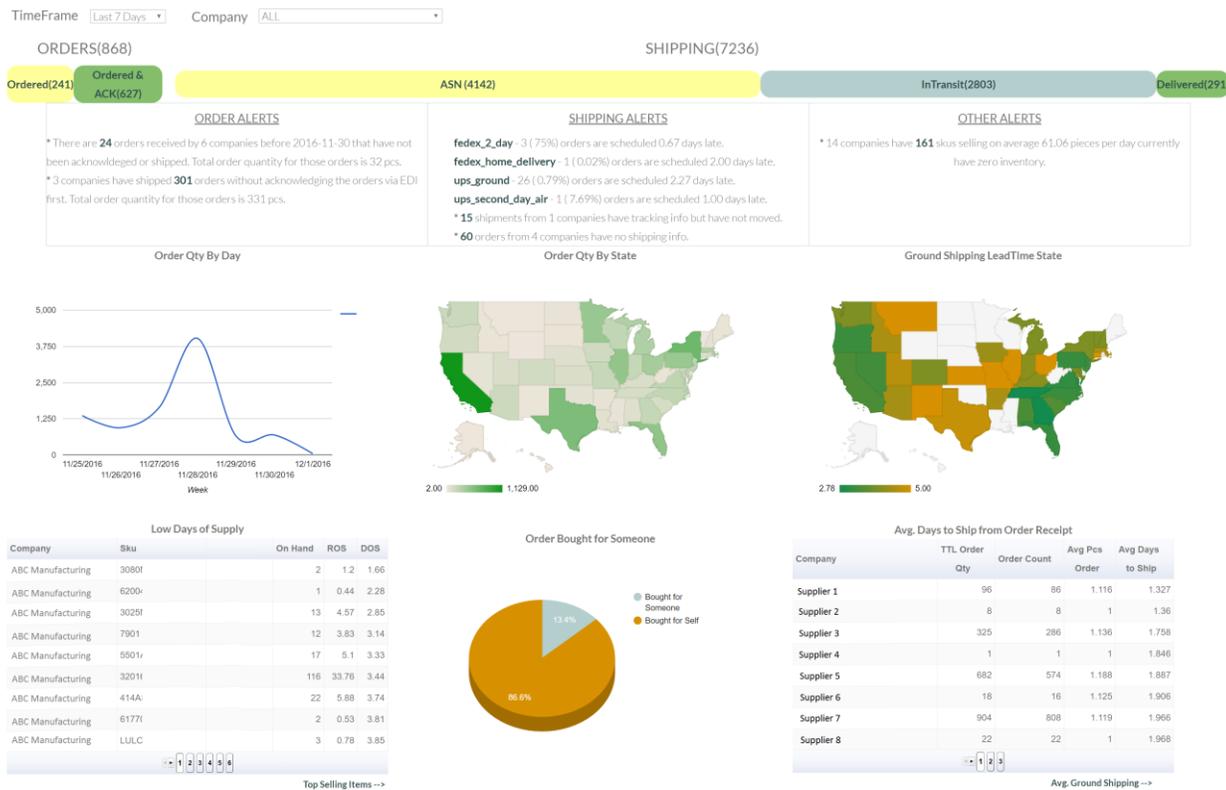
Determining whether or how much to invest in a new technology is a common point of debate for both manufacturers and retailers. There is a cost to being early sometimes, without a major benefit. We are just now reaching the point where Artificial Intelligence (AI) can provide valuable insights depending on how large your business is and the tools you choose to use. Many organizations are starting to hire Data Scientists to help them with analytics and putting their large data sets to good use. Tools to manipulate, integrate and interpret data have changed significantly since the first edition of this primer. The “slice and dice” type Business Intelligence (BI) tools have become commoditized. Most are great at formatting and visualizing data but are not “smart”. The AI platforms that are starting to pop up are intriguing but need specific knowledge to be useful. For instance, we tested IBM’s Watson with simple POS data. It made a generalization that the larger the UPC number the higher the sales. Even the least seasoned of retail professionals know that makes no sense. It lacks a frame of reference to make relevant assessments, at least not yet. That’s scary and a reason many people fear AI. Then there’s the bias issue. AI has been coded by humans, so their logic and bias are inherent in the software they develop. Not all bias is bad though. Expert systems are designed with specific domain knowledge to put perspective and relevance behind results. For example, users of retail analytic systems may be new to the industry and may not know what questions to ask of data. The expert system can “lead” the user to the most actionable or important information that impacts the business. Alternatively, experienced and knowledgeable users may not have the time to analyze every SKU-store combination looking for opportunities to improve sales or inventory productivity. Merge the domain intelligence with the speed at which computers can now interact with data and you have a meaningful combination. An example is our [RetailNarrative](#) system, that loads POS data, scans all the SKU-store data, integrates wholesale inventory and forecasts to automatically summarize the business and point out actions that can improve the system. The goal is to remove the hours and days of work of building and formatting reports and condense that to seconds, thus allowing planners and sales teams to focus more on the communication and action to improve the business. We prefer the term “Augmented Intelligence” because it complements the user’s intelligence and improves the experience of analyzing the business for them. It integrates the different concepts outlined in our Discipline of the Planner section of this primer.



Each block of RetailNarrative asks a question of the data and then provides a summary of the findings, along with links to more detailed reports or templates from which action can be taken.

There are other uses of Augmented Intelligence that can make businesses more efficient. An example is ensuring that drop ship orders are properly taken, validated and communicated correctly between the drop ship supplier and retailer. Ever order something online, get a quick confirmation notice and then never hear anything again? That’s because somewhere along the line your order was never received by the supplier, or incorrect information was in that order and was rejected without anyone knowing. With stiff competition between retailers, these kinds of errors are extremely costly. No one can afford to lose a customer. With millions of transactions taking place, it’s hard to catch those exceptions. Integrating data from freight carrier’s API’s offer additional information to follow the entire lifecycle of an order from customer entry to final delivery. AI can be very helpful in that regard because it can check every transaction, and make sure all the points are connected. It can list out the exceptions and a prescription to fix them. It can conduct trend analysis

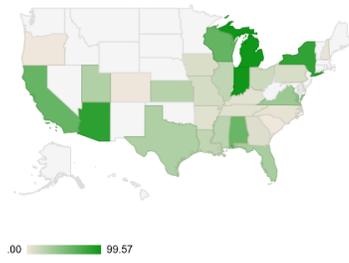
to determine what types of errors occur the most, which suppliers have poor compliance, the most efficient or fastest ship points and much more.



Drop Ship Tracker provides both retailer and supplier the information they need to ensure all orders are sent and received correctly. The system uses AI to ask questions of all the data points to find exceptions, point out efficient ship points, check inventory and more.

A final example explores how using AI can improve delivery. Retailers are looking to improve on-time, in-full shipments ensuring the quickest delivery possible to customers. One way to accomplish that is conducting a lead time audit. That means studying months or years of historic shipment data, scoring ship points and determining the most optimal lead times. Like the Narrative and Drop Ship examples, the system can ask all the relevant questions of the data and present the user with options on how and where to best ship products.

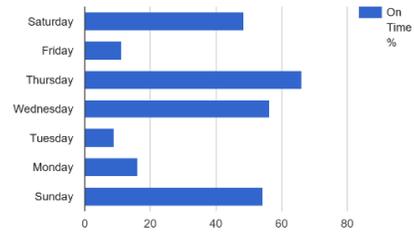
OnTime By DC



Item FillRate < 97%

Item Number	Description	Fill Rate%	Cases Ordered	Cases Received
10XXXXXX	Item 1	0	461	0
10XXXXXX	Item 2	0	351	0
10XXXXXX	Item 3	0	173	0
10XXXXXX	Item 4	0	106	0
10XXXXXX	Item 5	0	105	0
10XXXXXX	Item 6	0	102	0
10XXXXXX	Item 7	0	24	0
10XXXXXX	Item 8	0	11	0

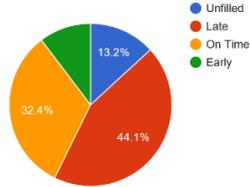
OnTime % by Day Shipped



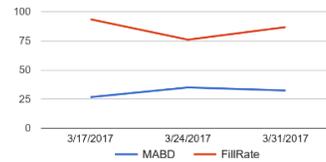
Timing Breakout

Days Early/Late

DC Nbr	Days To MABD	Earliest	Latest	Tot POs	Early POs	Late POs
6037	-7.333	-11	-1	9	7	0
6008	-4	-4	-4	1	1	0
6036	-2.571	-5	0	7	4	0
6068	-2.167	-4	1	6	5	1
6066	-2.111	-5	1	9	5	1
6070	-2.091	-3	0	11	9	0
6039	-1.9	-3	0	9	6	0
6054	-1.818	-3	2	11	8	2
6009	-1.8	-6	0	10	6	0
6094	-1.75	-4	1	8	5	2
6018	-1.667	-3	2	9	6	2
6011	-1.625	-3	0	8	4	0



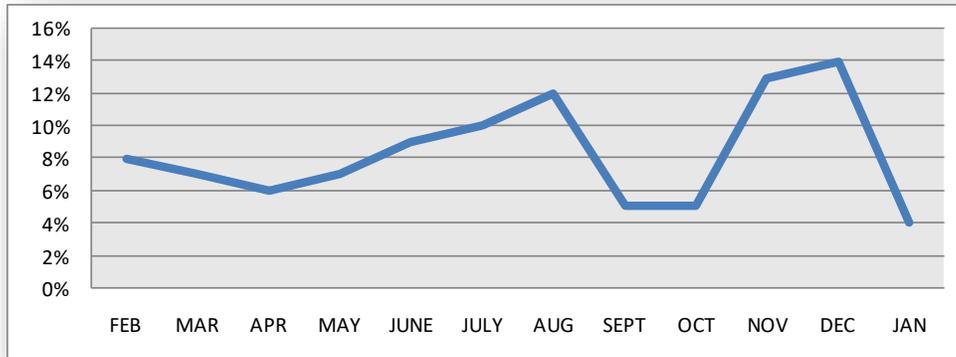
Weekly FillRate and MABD



These are just a few examples of how AI can provide insight and a path to take faster action. There are other parts of the retail business where I think the power of AI can be very useful. Studying foot traffic data, automating laborious processes such as scanning hard copy data to databases, assisting with assortment planning based on color, size, style, fit and other product attribute information are a few. These are mostly back-end applications that don't review a specific person's private information, but there are also front-end examples that do. And some fit in between the two. The study of customer on-line shopping behavior, purchasing patterns and motivations to buy are a few. Amazon and others have accustomed us to the "you might also like" or "customers also purchased" sections of ecommerce websites that use algorithms to look at your browser behavior and determine what similar items might be of interest. On other websites, targeted ads show up based on similar behavior including search.

These are "suggestion" based analytics but we are quickly entering the era of large scale AI systems designed to make decisions for us. Issues such as privacy, whether or not data can or should be collected, for how long and determining bias are all yet to be worked out. It is important to remember that when many of our modern-day technologies were first introduced to the public there were serious concerns and periods of debate before they were perfected and accepted. When electricity was first introduced into buildings and homes many people were so scared of it they refused to touch the switches to turn lights on. They actually paid people to come in and do that. An excellent read on the concerns of bias in data is Cathy O'Neil's [Weapons of Math Destruction](#). I highly recommend it.

UNDERSTANDING SALES CURVES



Sales curves are generally used by retailers and suppliers in their planning process to document seasonality for their categories and items. A sales curve offers a numeric representation of sales, usually based on history. A forward-looking curve would take history and then make adjustments to it based on calendar shifts (holidays) and promotional activity. Expressed in months, weeks or days, the calculation is the percentage of that unit to the total. The sum of all points on a sales curve should total 100%.

This example demonstrates how a sales curve can be used to determine sales potential.

If sales for May are 1,200 units, and sales for the year are 12,000: May is worth 10%.

May Units = 1,200 Expected Annual Units = 12,000

May = $1,200/12,000 = .10$ or 10%

Working backwards, if May is worth 10% of the year, and 1,000 units were sold in May you can expect to sell 10,000 units on an annual basis.

May = 10% of year May = 1,000 / .10

Expected Annual Units = 10,000

Typically, this process begins with a curve, to determine monthly or weekly sales units.

Expected Annual Units = 10,000

Feb= .08 May= .07 Aug= .12 Nov= .13

Mar = .07 June= .09 Sep= .05 Dec= .14

Apr = .06 July = .10 Oct= .05 Jan= .04

Multiply each month's percentage by Expected Annual Units, to determine a sales plan by month.

Feb= 800 May= 700 Aug= 1,200 Nov= 1,300

Mar= 700 June= 900 Sep= 500 Dec = 1,400

Apr= 600 July = 1,000 Oct= 500 Jan= 400

What is paramount is the understanding of how each month relates to the other. Some months are larger than others are because they contain the "peaks" in customer traffic patterns. For instance, August, November and December are all larger than the other months because customers shop more in August for Back to School, and at the Holidays.

Understanding Sales Curves, Continued

Sometimes, when Buyers determine how inventory needs, they calculate coverage in weeks or months. If a Buyer wants 3 months of coverage, and today is April 1st, the coverage needs are 2,200 units (600 + 700 + 900).

A weekly sales curve is more precise. Using the same point in time, and 12 weeks of coverage:

Week 10 = .015	Week 14 = .012	Week 19 = .016
Week 11 = .014	Week 15 = .013	Week 20 = .022
Week 12 = .016	Week 16 = .014	Week 21 = .025
Week 13 = .015	Week 17 = .014	Week 22 = .027
	Week 18 = .017	
April = .06	May = .07	June = .09

The calculation is the addition of Weeks 10 to 21 (12 weeks), or .193. Then multiply .193 by 10,000 (the expected annual units). On April 1st, 12 weeks of coverage would be 930 units. .

Notice the variation in percentages between weeks. Just as some months are larger, some weeks are bigger than other weeks. In May, Week 18 is the largest in the month; Mother's Day falls in the last week of May. In Week 19, sales fall because customer traffic drops after the holiday. The same logic is applied in June, for Father's Day.

Increased traffic affects the sales curve. Apply the same logic in adjusting a sales curve for a special promotion. Different factors (pricing, weather, holidays, calendar shifts, etc.) affect the curve. The variation between weeks or months is generally termed "lift," if numbers go up; and "decline," if numbers go down. If Week 1 is .01, and Week 2 is .015, the lift is expected to be +50%.

BUILDING A MORE ACCURATE FORECAST

Now that you have an understanding of sales curves let's create a forecast to estimate sales by month and the inventory requirements to meet that potential. Fill in the template on page 20 and use the following parameters to calculate the retailer's needs for the next 6 months (through November):

- June Actual Beginning On Hand = 29,000 (our existing inventory, not calculated)
- June sales = 9,000 units
- On Order: June = 6,000, July= 5,500, August= 5,000, September = 5,000
- Weeks of Supply Model: 3 months
- Assume that all Buys can be delivered when needed.

Look Out Points & Business Rules:

- 25 stores are currently below the MIN QTY level. It will require an additional 400 units to get them to the model. Add this for July.
- Old colors will be marked down in August, adding 15% in additional units above the calculated sales for that month.
- 100 stores being added in November. Based on average units per store per week we expect an additional 1,300 units in November, 1,400 units in December and 350 units in January.

Follow the steps below to complete the rolling forecast on the next page.

1. Estimate sales by month (July- Jan) using the sales curve. Start by determining the annual potential by dividing a known month's sales by the percent that month is worth on the curve. (Ex. If you sold 10,000 units in June, and June is worth 7% on the curve, your annual potential is 142,857 units (10,000/.07)). Enter the result in the Item Potential before Adjustments box. Now you can calculate the sales for each month July- January (month's sales curve % x annual potential).
2. Using your LOP's & business rules, make adjustments to the monthly sales estimates as needed. Enter the adjusted sales in the corresponding row.
3. Determine how much inventory you need at the beginning of each period based on a weeks of supply model of 3 months. Count and add up the *adjusted* sales for the corresponding periods (starting with July). This is the calculated beginning on hand. Because you will be comparing this number with the actual ending on hand, also enter it in the preceding month in the Calculated BOH (Next Month) row.
4. From the *actual* beginning on hand in the current month (starting with July), subtract the sales and add the on order for that month. Enter the result in the corresponding row. This will give you the actual ending on hand.
5. Finally, enter the next month's beginning on hand in the corresponding row. Compare the difference between the *calculated* beginning on hand for the next month (step 2) and the current month's ending on hand. A positive quantity means you need to place a buy, and the *actual* beginning on hand for the next period becomes the *calculated* beginning on hand for that same period (this assumes inventory is available). A negative quantity means no buy is required, and the *actual* beginning on hand for the next period becomes the ending on hand from the previous period. Enter either a "BUY" or "CARRY OVER" in the corresponding row to denote the action required.

BUILDING A MORE ACCURATE FORECAST

Sales Curve			
FEB = 8%	MAY = 7%	AUG = 12%	NOV = 13%
MAR = 7%	JUNE = 9%	SEPT = 5%	DEC = 14%
APR = 6%	JULY = 10%	OCT = 5%	JAN = 4%

Item Potential before Adjustments	
--	--

Open to Buy	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	JAN
Calculated Beginning On Hand	33,200	29,200						
Actual Beginning On Hand	29,000	29,200						
Calculated Sales	9,000							
- Sales (after adjustments)	9,000							
+ On order	6,000							
Actual Ending On Hand	26,000							
Calculated BOH (Next Month)	29,200							
Buy Quantity	3,200							
Carry Over Quantity	0							

LADDER PLANNING

The forecast in the previous section helps estimate long term sales and inventory needs which facilitates production planning and determining raw material needs. For live merchandise programs, a planner needs to react and make changes to those forecasts and plans as actual sales and trends develop in the short term. We've already covered a number of reports that track the performance of items and help detect trends. Now we will focus on another common method of planning and tracking that many retailers and suppliers call "ladder planning". Essentially it's a weekly plan of unit and dollar sales, inventory receipts and profitability. It uses many of the same concepts that the forecast does including seasonality but looks at a more granular level at receipt flow, how promotions might affect sales, and other adjustments. More importantly it tracks results each week against the plan and revises the original estimates for future weeks based on the trend. Many planners (especially manufacturers) use spreadsheet based tools for ladder planning which requires a lot of manual input and updating so we recommend a more automated database driven system. Let's take a look at a sample item plan.

Ladders generally consist of a "plan" side created before a program ships, and a "track" side that posts actual sales and revises the original estimates for future weeks. Creating the plan may be based on history or trying to target a specific quantity and determining each week based on a sales curve. Other methods include a build model for more consistently selling products not effected by seasonality.

Creating the weekly plan involves the following steps:

- Determine level to plan at: SKU, Item, Style, Program, etc.
- Determine plan dates. Generally, ladder plans are created for programs that have an expected life of 20 or more selling weeks.
- Determine what to base new plan on: history of same or like items, seasonality curve from category, etc. Collect data by week. Sometimes you might start with a total plan number in mind, and then spread the units by week based on the seasonality sales curve. In other cases, you may start the plan with last year numbers and then make any adjustments based on calendar shifts or changes in promotions, etc.
- Add other parameters such as promotional cadence (discounts and markdowns) and the weeks of supply inventory model you want to build to each week. Adding the promotional cadence enables you to calculate the anticipated "out the door" price- what the customer is really paying based on a given sale. The "out the door" price is also called the AUR (average unit retail). From there sales dollars and profitability can be calculated.
- Calculate the inventory required for each based on the weeks of supply model. For example, a given week with an 18 WOS model inventory requirement is the sum of the next 18 week's sales estimates.
- Compare the calculated plan profitability with the retailer's margin goal of the program.
- Conduct "What-if" scenarios (how does a particular promotion effect sales).

When trying to meet a margin goal, three components play a key part- the unit cost, the price the customer pays (ticketed retail minus and promotions) and the number of units sold at each price. Using a ladder plan enables you to review the net effect on projected margin based on changing any of these variables. Before a cost is committed, it is possible to see what is required to hit the margin goal based on the promotional cadence. We call this calculating the optimal cost.

Once the plan is set up and actuals are available, the "track" side of the plan becomes active. These steps are usually involved:

- Post actual sales units and dollars against the plan. Look at the variances by week, and also the trend based on the past several weeks (we look at last 4, 8, 12 weeks and year to date).
- Revise the original plan based on the trend. Each retailer has different guidelines on how to adjust a plan based on a trend. My experience was always to revise the plan up half of the trend if it was positive (increase plan by 5% if trend is up 10%) and plan down the full trend if it was negative (decrease plan by 10% if trend is down 10%). But there are many different philosophies on this.
- Make any adjustments to the receipt flow based on new trends. Some actions might include canceling future orders or ordering more. Others might be changing future promotions to generate more lift, etc.

LADDER PLANNING

The next page provides an example of a typical ladder plan that is already tracking actuals.

The variables and their descriptions/formulas are found in the table below:

Variable	Description
WK	Week of plan- not the fiscal WKYR. WK1 corresponds to the Plan Start Date/Plan Start Week (fiscal WKYR)
Plan Units	Estimated plan sales units for given week from Projected Plan.
Act/Rev Units	Actual/Revised Units. Actual through most current week of data availability. Revised units takes the Projected Plan sales units X the trend, as selected by user at plan creation.
G/L	Gain or Loss comparing Actual to Plan. Formula = (Actual – Plan)/Plan
Plan Sales \$	Estimated plan sales dollars from Projected Plan
Act/Rev Sales \$	Actual/Revised sales dollars. Actual through most current week of data availability. Revised dollars multiplies the revised units X plan AUR.
Plan AUR	Estimated Average unit retail from Projected Plan
Act/Rev AUR	Actual/Revised Average Unit Retail. Actual through most current week of data availability. Actual Sales \$ divided by Actual Sales Units. Revised AUR is plan AUR.
Plan GP%	Plan gross profit % from Projected Plan
Act/Rev GP%	Actual/Revised Gross Profit %. Actual GP\$/Actual Sales \$. Actual GP\$= Actual Sales \$ - Actual Sales Units X Unit Cost. Same methodology for revised except using revised plan numbers.
Plan Inv	Calculated beginning on hand from Projected Plan
Act/Rev Inv	Actual/Revised Inventory
Plan ST%	Planned sell through from Projected Pan
Act/Rev ST%	Actual/Revised Sell through
Total to Date	Sum of corresponding values through the most current week for which data is available.
Act/Rev	Sum of corresponding values for all weeks in the plan, combining actual and revised plan estimates together.
User Applied Trend	The trend % used to calculate the Revised Plan units.

Blue shaded cells contain actuals.

Green shaded cells contain the revised original plan.

Yellow shaded cells contain month totals.

This example uses the last 12 weeks' trend to revise forward estimates. It also assumes the same average unit retail each week. Month totals are shown and are comprised of the corresponding week's per the retailer's fiscal calendar.

LADDER PLANNING

Original Plan Units: 1,200,000

Cost: \$23.15

Ticketed Price: \$59.99

Margin Goal: 42.00%

WOS Model: 18

WK	Original Plan Units	Actual/ Revised Plan Units	% Difference	Plan Sales \$	Actual/ Revised Sales \$	% Difference	Plan AUR	Actual/ Revised AUR	Plan GP%	Actual/ Revised GP%	Plan Inventory	Actual/ Revised Inventory	Plan Sell Through %	Actual/ Revised Sell Through%
WK1	19,200	20,082	4.6%	\$904,896	\$979,419	8.2%	\$47.13	\$48.77	50.9%	52.5%	387,600	535,184	5.0%	5.2%
WK2	20,400	20,884	2.4%	\$961,452	\$1,017,166	5.8%	\$47.13	\$48.71	50.9%	52.5%	398,400	531,376	5.5%	5.7%
WK3	19,200	20,854	8.6%	\$904,896	\$1,016,326	12.3%	\$47.13	\$48.74	50.9%	52.5%	411,600	525,540	5.1%	5.5%
WK4	18,000	20,011	11.2%	\$848,340	\$980,960	15.6%	\$47.13	\$49.02	50.9%	52.8%	426,000	528,828	4.6%	5.1%
Month 1	76,800	81,831	6.6%	\$3,619,584	\$3,993,871	10.3%			50.9%	52.6%				
WK5	19,200	19,758	2.9%	\$904,896	\$965,042	6.6%	\$47.13	\$48.84	50.9%	52.6%	442,800	543,070	4.7%	4.9%
WK6	18,000	19,807	10.0%	\$848,340	\$962,742	13.5%	\$47.13	\$48.61	50.9%	52.4%	458,400	537,794	4.2%	4.7%
WK7	19,200	20,544	7.0%	\$904,896	\$1,004,640	11.0%	\$47.13	\$48.90	50.9%	52.7%	476,400	539,786	4.4%	4.7%
WK8	18,000	20,196	12.2%	\$848,340	\$990,013	16.7%	\$47.13	\$49.02	50.9%	52.8%	494,400	547,832	3.9%	4.4%
Month 2	74,400	80,305	7.9%	\$3,506,472	\$3,922,437	11.9%			50.9%	52.6%				
WK9	19,200	21,248	10.7%	\$904,896	\$1,041,923	15.1%	\$47.13	\$49.04	50.9%	52.8%	507,600	556,090	4.0%	4.5%
WK10	19,200	21,424	11.6%	\$904,896	\$1,054,006	16.5%	\$47.13	\$49.20	50.9%	52.9%	516,000	557,654	3.9%	4.4%
WK11	20,400	23,408	14.8%	\$961,452	\$1,143,326	18.9%	\$47.13	\$48.84	50.9%	52.6%	520,800	554,795	4.1%	4.7%
WK12	22,800	25,538	12.0%	\$1,074,564	\$1,245,375	15.9%	\$47.13	\$48.77	50.9%	52.5%	522,000	567,921	4.6%	5.1%
WK13	24,000	25,343	5.6%	\$1,131,120	\$1,232,872	9.0%	\$47.13	\$48.65	50.9%	52.4%	519,600	571,407	4.8%	5.1%
Month 3	105,600	116,961	10.8%	\$4,976,928	\$5,717,502	14.9%			50.9%	52.6%				
WK14	25,200	23,424	-7.0%	\$1,187,676	\$1,127,976	-5.0%	\$47.13	\$48.15	50.9%	51.9%	517,200	592,090	5.1%	4.7%
WK15	25,200	24,291	-3.6%	\$1,187,676	\$1,168,187	-1.6%	\$47.13	\$48.09	50.9%	51.9%	512,400	609,762	5.1%	4.9%
WK16	25,200	24,507	-2.8%	\$1,187,676	\$1,171,480	-1.4%	\$47.13	\$47.80	50.9%	51.6%	506,400	630,743	5.2%	5.0%
WK17	27,600	27,231	-1.3%	\$1,300,788	\$1,294,073	-0.5%	\$47.13	\$47.52	50.9%	51.3%	499,200	638,088	5.7%	5.7%
Month 4	103,200	99,453	-3.6%	\$4,863,816	\$4,761,716	-2.1%			50.9%	51.7%				
WK18	27,600	26,593	-3.6%	\$1,300,788	\$1,278,054	-1.8%	\$47.13	\$48.06	50.9%	51.8%	490,800	645,532	5.9%	5.6%
WK19	30,000	30,696	2.3%	\$1,413,900	\$1,459,713	3.2%	\$47.13	\$47.55	50.9%	51.3%	483,600	655,946	6.5%	6.6%
WK20	33,600	34,722	3.3%	\$1,583,568	\$1,636,448	3.3%	\$47.13	\$47.13	50.9%	50.9%	475,200	642,824	7.4%	5.1%
WK21	33,600	34,722	3.3%	\$1,583,568	\$1,636,448	3.3%	\$47.13	\$47.13	50.9%	50.9%	463,200	629,702	7.6%	5.2%
Month 5	124,800	126,733	1.6%	\$5,881,824	\$6,010,663	2.2%			50.9%	51.2%				
WK22	34,800	35,962	3.3%	\$1,640,124	\$1,694,889	3.3%	\$47.13	\$47.13	50.9%	50.9%	453,600	617,740	8.1%	5.5%
WK23	34,800	35,962	3.3%	\$1,640,124	\$1,694,889	3.3%	\$47.13	\$47.13	50.9%	50.9%	438,000	600,978	8.3%	5.6%
WK24	36,000	37,202	3.3%	\$1,696,680	\$1,753,330	3.3%	\$47.13	\$47.13	50.9%	50.9%	427,200	587,776	8.9%	6.0%
WK25	37,200	38,442	3.3%	\$1,753,236	\$1,811,771	3.3%	\$47.13	\$47.13	50.9%	50.9%	420,000	578,134	9.5%	6.2%
WK26	31,200	32,242	3.3%	\$1,470,456	\$1,519,565	3.3%	\$47.13	\$47.13	50.9%	50.9%	408,000	571,092	8.2%	5.3%
Month 6	174,000	179,810	0.0%	\$8,200,620	\$8,474,444	3.3%			50.9%	50.9%				
WK27	27,600	28,521	3.3%	\$1,300,788	\$1,344,195	3.3%	\$47.13	\$47.13	50.9%	50.9%	399,600	565,371	7.3%	4.8%
WK28	24,000	24,801	3.3%	\$1,131,120	\$1,168,871	3.3%	\$47.13	\$47.13	50.9%	50.9%	390,000	558,570	6.5%	4.3%
WK29	21,600	22,321	3.3%	\$1,018,008	\$1,051,989	3.3%	\$47.13	\$47.13	50.9%	50.9%	384,000	554,249	5.9%	3.9%
WK30	20,400	21,081	3.3%	\$961,452	\$993,548	3.3%	\$47.13	\$47.13	50.9%	50.9%	380,400	551,168	5.6%	3.7%
Month 7	93,600	96,724	0.0%	\$4,411,368	\$4,558,603	3.3%			50.9%	50.9%				
WK31	21,600	22,321	3.3%	\$1,018,008	\$1,051,989	3.3%	\$47.13	\$47.13	50.9%	50.9%	376,800	545,647	6.0%	3.9%
WK32	20,400	21,081	3.3%	\$961,452	\$993,548	3.3%	\$47.13	\$47.13	50.9%	50.9%	370,800	540,166	5.7%	3.8%
WK33	19,200	19,841	3.3%	\$904,896	\$935,106	3.3%	\$47.13	\$47.13	50.9%	50.9%	368,400	538,325	5.5%	3.6%
WK34	18,000	18,601	3.3%	\$848,340	\$876,665	3.3%	\$47.13	\$47.13	50.9%	50.9%	367,200	537,724	5.2%	3.3%
Month 8	79,200	81,844	0.0%	\$3,732,696	\$3,857,308	3.3%			50.9%	50.9%				
WK35	19,200	19,841	3.3%	\$904,896	\$935,106	3.3%	\$47.13	\$47.13	50.9%	50.9%	368,400	537,083	5.5%	3.6%
WK36	20,400	21,081	3.3%	\$961,452	\$993,548	3.3%	\$47.13	\$47.13	50.9%	50.9%	349,200	516,002	5.8%	3.9%
WK37	21,600	22,321	3.3%	\$1,018,008	\$1,051,989	3.3%	\$47.13	\$47.13	50.9%	50.9%	328,800	493,681	6.6%	4.3%
WK38	21,600	22,321	3.3%	\$1,018,008	\$1,051,989	3.3%	\$47.13	\$47.13	50.9%	50.9%	307,200	471,360	7.0%	4.5%
WK39	24,000	24,801	3.3%	\$1,131,120	\$1,168,871	3.3%	\$47.13	\$47.13	50.9%	50.9%	285,600	446,559	8.4%	5.3%
Month 9	106,800	110,365	0.0%	\$5,033,484	\$5,201,503	3.3%			50.9%	50.9%				
WK40	19,200	19,841	3.3%	\$904,896	\$935,106	3.3%	\$47.13	\$47.13	50.9%	50.9%	261,600	426,718	7.3%	4.4%
WK41	24,000	24,801	3.3%	\$1,131,120	\$1,168,871	3.3%	\$47.13	\$47.13	50.9%	50.9%	242,400	401,917	9.9%	5.8%
WK42	28,800	29,761	3.3%	\$1,357,344	\$1,402,636	3.3%	\$47.13	\$47.13	50.9%	50.9%	218,400	372,156	13.2%	7.4%
WK43	25,200	26,041	3.3%	\$1,187,676	\$1,227,312	3.3%	\$47.13	\$47.13	50.9%	50.9%	189,600	346,115	13.3%	7.0%
Month 10	97,200	100,444	0.0%	\$4,581,036	\$4,733,925	3.3%			50.9%	50.9%				
WK44	22,800	23,561	3.3%	\$1,074,564	\$1,110,430	3.3%	\$47.13	\$47.13	50.9%	50.9%	164,400	322,554	13.9%	6.8%
WK45	18,000	18,601	3.3%	\$848,340	\$876,665	3.3%	\$47.13	\$47.13	50.9%	50.9%	141,600	303,953	12.7%	5.8%
WK46	18,000	18,601	3.3%	\$848,340	\$876,665	3.3%	\$47.13	\$47.13	50.9%	50.9%	123,600	285,352	14.6%	6.1%
WK47	18,000	18,601	3.3%	\$848,340	\$876,665	3.3%	\$47.13	\$47.13	50.9%	50.9%	105,600	266,751	17.0%	6.5%
WK48	16,800	17,361	3.3%	\$791,784	\$818,224	3.3%	\$47.13	\$47.13	50.9%	50.9%	87,600	249,390	19.2%	6.5%
Month 11	93,600	96,725	0.0%	\$4,411,368	\$4,558,649	3.3%			50.9%	50.9%				
WK49	15,600	16,121	3.3%	\$735,228	\$759,783	3.3%	\$47.13	\$47.13	50.9%	50.9%	70,800	233,269	22.0%	6.5%
WK50	18,000	18,601	3.3%	\$848,340	\$876,665	3.3%	\$47.13	\$47.13	50.9%	50.9%	55,200	214,668	32.6%	8.0%
WK51	18,000	18,601	3.3%	\$848,340	\$876,665	3.3%	\$47.13	\$47.13	50.9%	50.9%	37,200	196,067	48.4%	8.7%
WK52	19,200	19,841	3.3%	\$904,896	\$935,106	3.3%	\$47.13	\$47.13	50.9%	50.9%	19,200	176,226	100.0%	10.1%
WK53	0	0	0.0%	\$0	\$0	0.0%	\$47.13	\$47.13	0.0%	0.0%	0	176,226	0.0%	0.0%
Month 12	70,800	73,164	0.0%	\$3,336,808	\$3,448,219	3.3%			50.9%	50.9%				
Total To Date:	417,600	435,839	4.4%	\$19,681,484	\$21,133,293	7.4%			50.9%	52.3%				
Act/Rev:	1,200,000	1,244,359	3.7%	\$56,556,000	\$59,238,840	4.7%			50.9%	51.4%				
User Applied Trend:	284,400	293,899	3.3%											

CREATING AN ITEM PLAN EXERCISE

This worksheet will allow you to create a simple plan for an item and analyze how different parameters can affect sales and profitability of the plan. Use the information below to fill in the empty cells for the plan below. Note that your solution may be different than ours because you may use different parameters.

Retailer ABC would like to purchase from you, supplier BCD, a promotional item. The item is expected to sell over a 26-week period. The buyer would like to plan similar to last year, which was a total of 25,000 units. They provided the seasonality curve. The requested cost is \$12.25 and ticketed price (MSRP) is \$30.00. They will promote weeks 5–15 at 30% off, weeks 18-20 at 40% off and all remaining units at 50% off. The margin goal is 42%. Will the plan meet the margin goal? Which parameters can be changed to improve the profitability of the program?

1. Spread the 25,000 units by week based on the sales curve (25,000 X Curve %).
2. Using the % Off calculate the average unit retail (AUR) for each week (Ticketed Price X (1- % Off)).
3. Calculate the sales dollars by multiplying the sales units by AUR for each week.
4. Calculate the Gross Profit Dollars by subtracting Sales Dollars – Cost Dollars (Week Units X Unit Cost).
5. Calculate the Gross Profit % by dividing the GP Dollars by Sales Dollars.
6. Sum the weekly numbers to get plan totals and fill the values in the grey shaded cells.
7. Calculate the profit required by the Margin Goal (Margin Goal X Total Plan Sales Dollars).
8. Determine whether the Margin Goal is met (Total Plan Gross Profit Dollars – Margin Goal Dollars).

WK	Curve %	WK Units	% Off	AUR	\$\$ Sales	GP\$	GP%
1	0.01		0%				
2	0.01		0%				
3	0.015		0%				
4	0.03		0%				
5	0.04		30%				
6	0.045		30%				
7	0.04		30%				
8	0.05		30%				
9	0.05		30%				
10	0.05		30%				
11	0.055		30%				
12	0.06		30%				
13	0.055		30%				
14	0.05		30%				
15	0.04		30%				
16	0.03		0%				
17	0.02		0%				
18	0.05		40%				
19	0.05		40%				
20	0.05		40%				
21	0.04		50%				
22	0.03		50%				
23	0.03		50%				
24	0.04		50%				
25	0.03		50%				
26	0.03		50%				
Total		25000					

Margin Goal Profit \$:	
Plan Profit \$:	
Difference from Goal:	

COLLABORATIVE FORECASTING & VENDOR MANAGED INVENTORY

As retail margins continue to diminish, expense cutting will remain a high priority. That will translate to less resources both at store and corporate levels. For large buying units that means continuing to use outdated forecasting and replenishment systems, and even if more modern versions exist, less people to monitor and check policies. It is my belief that more and more retailers will come to rely on their vendors to share the merchandise planning, management and (possibly) allocation aspects. Many retailers regularly collaborate with vendors- sharing data and inventory management risk. Collaboration comes in many forms including assigning category management responsibility to a vendor, forecast collaboration, scan based trading and vendor managed inventory (VMI) in which the vendor takes the entire responsibility of planning and writing store orders. Many retailers are hesitant in giving vendors more responsibility- including letting them write their own orders. But when looked at objectively, it really makes a lot of sense. First, it reduces risk for both parties. Retailer is not responsible for the inventory, adds more eyes to watch the business and has more time to think strategically. While the vendor does incur additional cost to add resources to manage (people, systems, etc.), if they have the opportunity to improve their inventory turn and production by even the smallest percentage, it's money that goes straight to the bottom line. They're systems can also be more advanced in trend detection than the retailer's, meaning opportunities or liabilities are acted upon much more quickly. In this section we will focus on VMI- how to do it, the benefits and of course- the math.

In the VMI model the retailer provides product activity (such as an EDI 852) to a vendor to compare against model stock for each store location. Once a vendor has this information, they integrate it with their wholesale ownership to determine production needs, what replenishment is needed by store and creates reverse PO's. There are both short and long term objectives. The vendor not only manages door level replenishment but also the production pipeline on the supply side. Based on the lead time of landing finished goods on the retailer's shelf, the vendor has to develop a time and action calendar to ensure the flow of product will match demand.

Benefits of VMI include:

- More Consistent Flow of Product
- Improved In-Stock
- Increased Sales and Profit
- Quicker Response Time to Trends
- More Accurate Forecasting
- Additional Set of Eyes and Resources
- Greater Visibility to Stock Position
- Enhanced Production Planning
- Less Risk for Buyer and Supplier

Requirements:

- POS Feed (usually EDI 852) at Store Level with Sales and Inventory Fields
- Ability to Integrate Wholesale Inventory
- Retail Analytic Platform
- Inventory Management/Forecast System
- Visibility to Past, Present and Future
- Door Level Needs Calculator
- Know What Questions to Ask
- Speed and Flexibility

Supplier Responsibilities

- Manage Wholesale Inventory
- Manage Receipt Flow
- Calculates Needs to SKU by Store
- Creates Reverse PO & Transmits to Retailer
- Compares Estimates with Buyer's

Buyer Responsibilities

- Manage Open to Buy
- Estimates Weekly Sales by Item
- Communicates Changes in SKU/Stores
- Communicates Promotional Plans, Etc.
- Compares Estimates with Supplier's

COLLABORATIVE FORECASTING & VENDOR MANAGED INVENTORY

Now we will step through the Set Up and Cycle of managing inventory throughout the process. While the vendor is doing the majority of work, continuing dialog with the buyer should be maintained so that there are never any surprises. Each buyer is different in the frequency of contact but we recommend a weekly dashboard that shows expected order quantity, dollar amount of order and any exceptions where action is required.

Steps for VMI Set Up:

1. Identify item candidates for VMI.
2. Identify store candidates for VMI.
3. Determine the replenishment model (math).
4. Define parameters (lead time, weeks of supply, model stock, pack size, etc.).
5. Define the review periods.
6. Determine constraints and Push Scenarios (Ex. What to do if order required is greater than buyer has dollars for).
7. Define data sets.
8. Develop VMI roadmap.

Weekly Cycle:

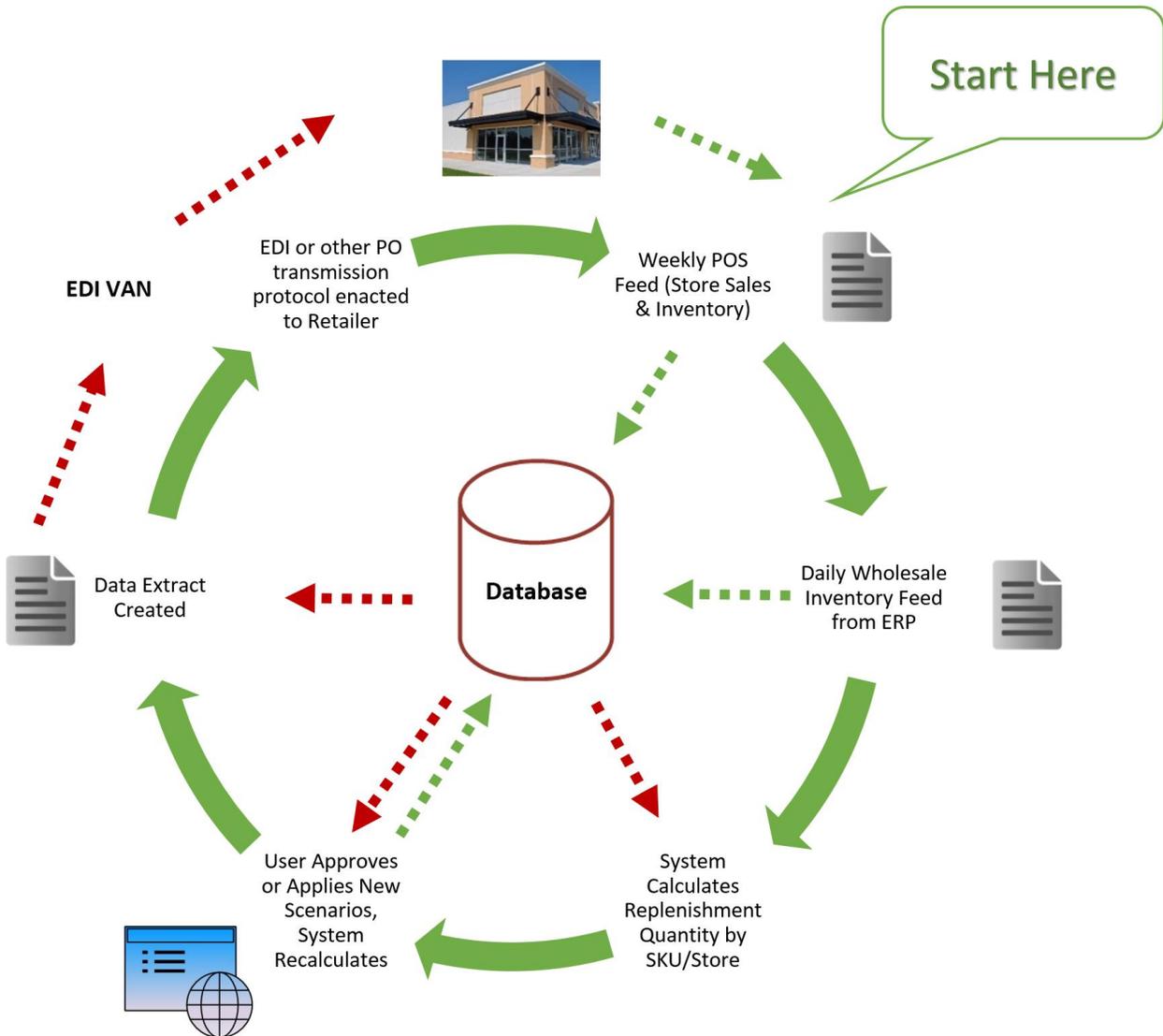
1. Supplier receives POS data.
2. Supplier integrates wholesale inventory.
3. Calculate raw replenishment needs by SKU/Store.
4. Apply rules & constraints against raw needs.
5. Supplier reviews replenishment recommendations.
6. Supplier makes any adjustments to raw needs.
7. Recalculate as needed.
8. Supplier reviews final order.
9. Supplier/Buyer approves or adjusts again.
10. Supplier creates data extract with order quantities by SKU/Store.
11. EDI (or other transmission protocol) order transmitted to retailer.
12. Retailer confirms order.

Monthly Cycle:

1. Supplier reviews actual sales to forecast.
2. Supplier makes adjustments to forecast if needed and shares with Buyer.
3. Supplier estimates future week/month retail sales.
4. Supplier lines estimates against available to ship and future production.
5. Supplier determines if additional production is required to meet rate of sale, any peaks or lulls based on promotions or seasonality.
6. Supplier makes adjustments to production plan.

COLLABORATIVE FORECASTING & VENDOR MANAGED INVENTORY

This graphic illustrates the weekly VMI cycle. While most relationships will follow this process, the documents (weekly POS feed, wholesale inventory and data extract) are custom to each manufacturer-retailer combination. The optimal VMI solution automates the majority of the process yet allows for flexibility in handling inventory or open to buy constraints and shows results in real time.



Calculating the SKU-Store Raw Needs

There are several different methods for calculating needs. Determining which method makes the most sense depends on several factors including the type of item, seasonality, presentation and the retailer's inventory management philosophy. In rare cases it may also be determined on supply side inventory constraints- where production is limited or only available at certain times of the year. Calculating replenishment by store is in some ways similar to forecasting at item level. Both can use a sales curve, are based on rate of sale and have on hand inventory targets. The method we will review is based on applying a seasonality sales curve against a composite rate of sale averages. We average the last 4 and 8 weeks of units sold. The sales curve (described earlier in this primer) may also be adjusted for promotions, calendar shifts and other assortment or market conditions not part of pure seasonality.

COLLABORATIVE FORECASTING & VENDOR MANAGED INVENTORY

The example below shows a typical scenario for determining how many units to ship to a SKU-store. The target weeks of supply model is 10 weeks. A sample sales curve is provided. The average sales over the last 4 weeks is 9 units, the average sales over the last 8 weeks is 8.4 units. Averaging them together is 8.7. We then multiply 8.7 X 52 weeks to get the annual potential, 452 units. We can then estimate future weeks using the sales curve by multiplying 452 X each week's curve %. Summing the next 10 weeks of sales estimates is 60.5. The current on hand is 50 plus 6 on order for a total ownership of 56. The difference, 60.5 – 56 is 4.5. This is the raw need. Unfortunately, only 2 units are available to ship from the vendor so the total order for this SKU-store will be 2 units.

TGT WOS:	10																																																																																																																				
CALC METHOD:	AVG OF LAST 4 & LAST 8 WEEKS SALES																																																																																																																				
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WK 1	WK 2	WK 3	WK 4	WK 5	WK 6	WK 7	WK 8	WK 9	WK 10	WK 11	WK 12																																																																																																										
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TGT OH (SUM OF CURVE):	60.5																																																																																																																				
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ADJUSTED NEED (BASED ON USER SCENARIO):	2.0																																																																																																																				

This example is for just one SKU-store combination. But based on the merchandise program there could be hundreds or thousands of SKU-store combinations to do these calculations on. That's where an efficient and fast system is required. What happens if total needs for this SKU across all stores totaled 500 and only 300 units were available to ship? In that case you have to select from a variety of "scenarios" to allocate. You could feed top stores only, spread units across all stores, prioritize certain store groups, etc. Scenarios should be discussed up front with the buyer and the system you use should be able to handle those calculations because doing it by hand is just not productive.

UNDERSTANDING THE RETAILER'S SCORECARD

Retailers use a variety of methods to measure and track the performance of their vendors. They usually do this through the use of a Scorecard with their Key Performance Indicators (KPI's). The detail at which the performance is tracked varies greatly but generally contains both financial and compliance (logistics) measurements. The financial section shows sales- units & dollars, markdowns and receipts, profitability and inventory productivity for a selected time period- usually year to date or a specific fiscal month. The compliance section recaps errors in packing, shipping and logistics. Expense Offset or Chargebacks are charges that a supplier has incurred based on errors.

The key to making good use of a scorecard is understanding what the benchmark and expectation is for each KPI. We strongly recommend building tolerances around each KPI so it is easy to communicate quickly and effectively with the buyer. For example, let's say the gross margin expectation is 40% and the target weekly sell through is 5%. You could build tolerances as follows:

GM% > 42%	Exceptional	WK ST% > 10%	Exceptional
GM% 40 – 41%	On target	WK ST% 7 – 9%	Very strong
GM% 38 - 39%	Close to target	WK ST% 5 – 6%	Meeting target
GM% 36 – 38%	Missing target	WK ST% 4%	Close to target
GM % < 36%	Problematic	WK ST% < 3%	Missing target

Financial										
Sales \$			Units Sold			Markdowns			Receipts	
TY \$	Rk	% +/-	TY \$	Rk	% +/-	TY \$	TY %	LY %	TY \$	Rk
344,078	n/a	11.2	39,666	n/a	16.7	630,164	183.1	120	595,230	n/a

The second part of the financial section recaps the profitability including inventory productivity and its effect on profit. The Cost Concessions includes any financial assistance you have provided directly to the buyer (generally for margin agreements). This can be negotiable. The Supplier Co-Op are funds (generally advertising) automatically deducted from your account. This is generally not negotiable and part of the supplier set up agreement with the retailer.

The margin assistance requests use the Gross Profit, not the Maintained Margin which excludes loads and wholesale markdowns. Keep in mind when reconciling a margin assistance request the Gross Profit as shown in the scorecard may not match what the buyer shows or what you calculate using their GAFS/COGS (Goods available for sale/cost of goods sold) formulas. This is generally because the time frames are different and cost concessions may not have shown up yet.

Financial																				
Maintained Margin			Cost Conc	GPROI (50)				Gross Profit (30)					Turnover (20)				Supplier Co-Op		Total	
TY \$	TY %	LY %	TY \$	TY	Rk	Score	LY	TY \$	TY %	Rk	Score	LY %	TY	Rk	Score	LY	TY \$	LY \$	Rk	Score
139,736	40.6	49.2	0	0	n/a	n/a	0.06	-3,468	-1.0	n/a	n/a	49	0.02	n/a	n/a	0	-786	-7,660	37	0

The compliance section recaps errors in packing, shipping and logistics. Expense Offsets are charges that you have incurred based on errors. Ask the retailer what the benchmark is. The industry benchmark in general is around 99%.

Compliance									
General Order Terms		Transportation		EDI		Packaging/Labeling		Overall	
Percent	Expense Offset	Percent	Expense Offset	Percent	Expense Offset	Percent	Expense Offset	Percent	Expense Offset
100	50	n/a	0	99.1	2,727.62	100	0	99.7	2,777.62

It is a good idea to download your scorecard at the end of each month to use as backup when conducting margin reconciliation at the end of each quarter.

Be sure to review the Key Performance Indicators on the following pages and the reference section starting on page 32 to get a deeper understanding of the different metrics.

In the last several years, retailers have focused scorecards more on logistics and supply chain. Here they track how well a supplier ships, follows carton and labeling rules and how long it takes them to ship.

YTD SUPPLY CHAIN GRADE: **A**

Cost Receipt Information						Supply Chain Category						Optimal Score	2022 YTD	2021 YTD	2022 Apr	2021 Apr	
Cost Receipts	Rank	% Change	Ordered Units	Verified Units		Fill Rate	Received as Ordered (1)	Compliance Dollars	% to Cost Receipts (2)	Audit Failure Rate %	Audit Failure Rate % Total (3)	Shipping Performance	Average Days Routing/WK (4)	Shipping Performance	Shipment Creation (5)	Shipping Performance	First Available Day (6)
2022 YTD	\$8,388,495	49	1.9%	393,541	400,039	2022 YTD	96.1%	98.9%	\$8,691	\$0	0.10%	0	6	2	2	2	2
2021 YTD	\$8,229,457	37		319,184	367,919	2021 YTD	99.8%	100.0%	\$8,101	\$0	0.10%	0	0	2	2	2	2
2021 YE	\$54,136,201	26		2,258,354	2,289,172	2021 YE	99.6%	99.7%	\$68,945	\$0	0.13%	0	6	2	2	2	2
Apr 2022	\$3,125,445	45	108.8%	91,347	139,537	Apr 2022	84.3%	95.9%	\$2,166	\$0	0.07%	0	0	2	2	2	2
Apr 2021	\$1,496,796	71		59,008	79,831	Apr 2021	98.6%	100.0%	\$2,378	\$0	0.16%	0	0	3	3	3	3
TOTAL Supply Chain Category Score																	
100 97.6 97.6 90.4 88.3																	

PO Type	2022 YTD	2021 YTD	2021 YE	2022 April	2021 April	Purchase Order Fill Rate	Read as Ordered (RAO) (1)	RAO E-Comm Only	New Store On Time	Shipment, Pkg and Prep	Transportation	% to Cost Receipts (2)	Average Units Per Carton			
													PBS	Prepack	Bulk	Total
Domestic Landed	0.0%	0.0%	0.0%	0.0%	0.0%	2022 YTD	96.1%	98.9%		\$8,691	\$0	0.10%	0	6	2	2
Import	100.0%	100.0%	100.0%	100.0%	100.0%	2021 YTD	99.8%	100.0%		\$8,101	\$0	0.10%	0	0	2	2
Flow	0.0%	0.0%	0.0%	0.0%	0.0%	2021 YE	99.6%	99.7%		\$68,945	\$0	0.13%	0	6	2	2
Inforem	0.0%	0.0%	0.0%	0.0%	0.0%	Apr 2022	84.3%	95.9%		\$2,166	\$0	0.07%	0	0	2	2
Other	0.0%	0.0%	0.0%	0.0%	0.0%	Apr 2021	98.6%	100.0%		\$2,378	\$0	0.16%	0	0	3	3

Number of Purchase Orders					Crossdock Units-Percent by Type			Shipping Location		Volume (Cubic Feet)	Weight (Lbs)	Cartons	Avg Days Routing	Ship Create	First Avail Day
PBS	INNER	MULTI	BULK	Total	PBS	MULTI	Total								
2022 YTD	0	0	0	189	189	0.0%	0.0%	0.0%	YTD	0	0	0	0.0	0	0.0
2021 YTD	0	0	0	132	132	0.0%	0.0%	0.0%	LY	0	0	0	0.0	0	0.0
2021 YE	0	0	16	685	701	0.0%	2.9%	2.9%							
Apr 2022	0	0	0	30	30	0.0%	0.0%	0.0%							
Apr 2021	0	0	0	20	20	0.0%	0.0%	0.0%							

QC Audit Rank	Audit Failure Rate Percentage				Total Audit Failures / Total Audits				Top 3 Speed Impediments (YTD)		
	PBS	Prepack	Blk/Case	Total (3)	PBS	Prepack	Bulk/Case	Total	Description	Count	Total \$
2022 YTD	Average	0.0%	0.0%	0.7%	0/0	0/2	8 / 1,137	8 / 1,139	Improperly placed GS1-128 I	6	\$916.00
2021 YTD	Average	0.0%	0.0%	1.1%	0/0	0/0	10 / 914	10 / 914	Units checked due to vendor	5	\$629.20
2021 YE	Average	0.0%	1.5%	1.6%	0/0	1/67	84 / 5,184	85 / 5,251	Improperly placed GS1-128 I	4	\$535.00
Apr 2022	Very Good	0.0%	0.0%	0.4%	0/0	0/1	2 / 452	2 / 453			
Apr 2021	Poor	0.0%	0.0%	2.7%	0/0	0/0	5 / 188	5 / 188			

Shipping Performance	PO Lead Time	Avg PO Ship Window	Avg Days Routings per Week (4)	Shipment Creation (5)	First Avail Day for Pickup (6)	PO Start to Actual Ship	Days in Transit	Days DC Processing	Days to Store	Supply Chain Days Tot	PO Release to Store Days	% LTL Carrier Shipments	Top 3 Speed Impediments for April		
													Description	Count	Total \$
2022 YTD	0	0	-	-	-	13	8	6	2	29	29	0%	Units checked due to incorre	1	\$161.20
2021 YTD	0	0	-	-	-	17	9	6	2	34	34	0%	No GS1 label on carton	1	\$160.00
2021 YE	0	0	-	-	-	17	9	6	2	34	34	0%	Missing/Incorrect UPC barco	1	\$150.40
Apr 2022	0	0	-	-	-	11	7	7	2	27	27	0%			
Apr 2021	0	0	-	-	-	22	10	6	2	40	40	0%			

Scores	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Jan
2022	86 B	92 A	90.4 A									

BASIC MERCHANDISE TRACKING KPI's

SELL THROUGH (ST%)

Note: Sales are considered net.

Period Sales/(Period Sales + Inventory at End of Period)

Sales = 1000 EOH= 9000

ST%= 1000/(1000+9000)= .10 or 10%

Benchmarks for sell through vary greatly by category and retailer. For example, a 20% weekly sell through on a junior's denim jean may be considered average, where as 5% weekly sell through may be considered very high for a luxury comforter set.

WEEKS OF SUPPLY (WOS)

Inventory/Average Weekly Sales

OH= 9000 Last 5 Weeks of Sales = 4500 AV= 4500/5=900

WOS= 9000/900 = 10 weeks

Example: 8 WOS is high for Wal-Mart, Anything below 24 at Bed Bath and Beyond is considered lightly covered.

Average Unit Retail (AUR) or Out the Door (OTD)

Sales \$ for Period/Sales Units for Period

Sales \$ = \$10,000 Sales Units = 657

AUR= \$15.22

Gross Profit Dollars and Percent (GP\$, GP%)

GP\$ = Sales \$ – Cost of Goods Sold \$ (Cost \$ = Sales Units x Cost)

GP% = GP\$/Sales \$

Margins also vary widely between product categories and retailers. For instance, price clubs usually accept margins between 11 – 20%, while department stores expect well over 40%.

Markdown Dollars and Percent (MD\$, MD%)

MD\$ = Ticketed Price Sales – Actual Sales \$

MD%= MD\$/Actual Sales \$

Does a 25% off Promotion = 25% Markdown?

Ticketed Price: \$14.99 Promotion: 25% off

What was the Markdown %?

Out the Door (AUR) = \$14.99 x .75 = \$11.24

Markdown \$= \$14.99 - \$11.24 = \$3.75

Markdown % = \$3.75/\$11.24 = 33.3%

No. As you can see, when you sell something at 25% off, you're really taking a 33.3% markdown!

Average Weekly Units/Store and Average Weekly \$/Store

Av Weekly Units/Store = Av Unit Sales/# Stores

Last 6 weeks sales = 4500 # Stores = 500

Av Weekly Units= 4500/6 = 750

Av Weekly Units/Store = 750/500 = 1.5

Av Weekly \$/Store

Av Weekly \$/Store = Av \$ Sales/# Stores

Last 6 weeks sales \$ = \$45,000 # Stores = 500

Av Weekly \$ = \$45,000/6

Av Weekly \$/Store = \$7,500/500 = \$15

Understanding door level productivity is the key to finding opportunities. Generally you benchmark one item against another to see how they are penetrating the stores.

Historic Data Recap

The Historic Data recap displays the baseline data along with the percent variances by unit and by price. Price increase and decrease by percent quartiles are shown to the right. The criteria show changes in sales based on a price increase or decrease of less than 5%, 5% to < 10% and over 10%.

HISTORICAL DATA

	Criteria	Sales \$	Sales Units	Avg Price	Price		Sales		# of Correlations
					INC/DEC	Avg Sales	INC/DEC		
PRICE INCREASE	Less Than 5%	\$156,620	49,101	\$3.19	2.22%	24550	-5.49%	2	
	5% to < 10%	\$445,606	133,227	\$3.34	7.18%	22204	-14.52%	6	
	Over 10%	\$234,354	62,895	\$3.73	19.41%	20965	-19.29%	3	
	OverAll	\$836,580	245,223	\$3.41	9.33%	22293	-14.18%	11	
PRICE DECREASE	Less Than 5%	\$81,710	26,338	\$3.10	-0.58%	26338	1.39%	1	
	5% to < 10%	\$399,674	138,128	\$2.89	-7.27%	27626	6.35%	5	
	Over 10%	\$611,465	223,271	\$2.74	-12.24%	27909	7.44%	8	
	OverAll	\$1,092,849	387,737	\$2.82	-9.68%	27695	6.61%	14	

Criteria: Percent deviation categories (Less than 5%, 5%<10%, Over 10%).

Sales \$: From History Data.

Sales Units: From History Data.

Avg Price: Sales Dollars/Sales Units.

Price INC/DEC: (Avg Price – ACT LY Avg Price) / ACT LY Avg Price

Avg Sales: Average Sales Units over the 52 weeks of history

Sales INC/DEC: (Avg Sales Units – Weighted Avg Sales Units) / Weighted Avg Sales Units

of Correlations: Number of times the specified criteria match the % variances from the History data.

WK NBR	WEEK	ACT SALES	SEASON CURVE	SALES w/SEASONALITY	SALES		STORE PLACEMENT	Final Weighted Sales	ACT Sales Dollars	Final Weighted Sales \$	Avg Price	% From AVG Units	% from AVG Price
					AD WEEK	WITH AD & SEASON							
1	2/6/10	30,385	1.00	30,294	n	30,294	4	30,294	\$100,158.70	\$99,858.21	\$3.30	16.62%	5.63%
2	2/13/10	15,329	0.64	24,076	n	24,076	4	24,076	\$57,828.33	\$90,827.81	\$3.77	-7.32%	20.89%
3	2/20/10	26,983	0.92	29,224	n	29,224	4	29,224	\$85,645.26	\$92,759.05	\$3.17	12.50%	1.72%
4	2/27/10	28,883	1.04	27,652	n	27,652	4	27,652	\$90,832.72	\$86,962.42	\$3.14	6.45%	0.78%
5	3/6/10	20,030	0.66	30,400	n	30,400	4	30,400	\$68,295.25	\$103,651.72	\$3.41	17.02%	9.27%
6	3/13/10	22,871	0.67	34,170	n	34,170	4	34,170	\$73,339.95	\$109,573.15	\$3.21	31.54%	2.76%
7	3/20/10	22,826	0.70	32,596	n	32,596	4	32,596	\$73,624.88	\$105,137.95	\$3.23	25.48%	3.36%
8	3/27/10	21,569	0.85	25,493	n	25,493	4	25,493	\$71,872.51	\$84,949.50	\$3.33	-1.86%	6.78%
9	4/3/10	21,019	0.80	26,338	n	26,338	4	26,338	\$65,209.26	\$81,710.34	\$3.10	1.39%	-0.58%
10	4/10/10	20,465	0.69	29,579	n	29,579	4	29,579	\$65,805.60	\$95,113.19	\$3.22	13.87%	3.04%

Week: Week number.

ACT SALES: Actual Sales from Input Sheet.

SEASON CURVE: Based on the 52 weeks of transaction data from the input sheet. Takes one week's transaction amount divided by the total amount of transactions for 52 weeks and then multiplies that total by 52.

SALES w/SEASONALITY: The new sales when the calculated seasonality is considered. Found by first doing an IF statement of whether the "season curve" is >0, and if it is: take the actual sales (B) divided by the season curve (C).

AD WEEK: Indicates if an ad was in effect- Y for yes and N for no.

SALES WITH AD & SEASON: Adjusted sales when seasonality and ad week are considered. Calculated by an IF statement that says if ad week (E) is "yes", then take the sales w/ seasonality (D) divided by (1+the lift %), and if not, just take the sales w/ seasonality value.
Note: In this case, none of the season curve values were negative, and none of them had ads that week. This caused the "sales with ad & season" to be the same value as "sales w/ seasonality".

STORE PLACEMENT: Based on the designated placement rank quartiles located above the chart.

Final Weighted Sales: IF statement that gives final weighted sales including store placement. If the "sales w/ seasonality" number does not match the "sales with ad & season", it takes the "sales with ad & season" divided by 1 + the corresponding lift.

ACT Sales Dollars: Actual sales dollars from input sheet.

Final Weighted Sales \$: If "Final Weighted Sales" equals "Act Sales Dollars", then enter that value as the "Final Weighted Sales \$", and if not, take "Final Weighted Sales" times the Average Price.

Avg Price: Actual Sales Dollars / Actual Sales

% From AVG Units: (Final Weighted Sales - Average Units Weighted)/Average Units Weighted

% from AVG Price: (Average Price - Baseline Average Price)/ Baseline Average Price

K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB
Final Weighted Sales \$	Avg Price	% From AVG Units	% from AVG Price	CORRELATION	% INCREASE OR DECREASE			Criteria	Sales \$	Sales Units	Avg Price	Price INC/DEC	Avg Sales	Sales INC/DEC	Incr/Dec Each 1%		
\$99,858.21	\$3.30	16.62%	5.63%	0	10%	0-10%	PRICE INCREASE	Less Than 5%	2-5%	\$156,619.66	49,101	\$3.19	2.22%	24550	-5.49%	-2.48%	
\$90,827.81	\$3.77	-7.32%	20.89%	2	OVER 10%	2-OVER 10%		5% to < 10%	2-10%	\$445,606.25	133,227	\$3.34	7.18%	22204	-14.52%	-2.02%	
\$92,759.05	\$3.17	12.50%	1.72%	0	5%	0-5%		Over 10%	2-OVER 10%	\$234,354.10	62,895	\$3.73	19.41%	20965	-19.29%	-0.99%	
\$86,962.42	\$3.14	6.45%	0.78%	0	5%	0-5%		OverAll	2	\$836,580.01	245,223	\$3.41	9.33%	22293	-14.18%	-1.52%	
\$103,651.72	\$3.41	17.02%	9.27%	0	10%	0-10%	PRICE DECREASE	Less Than 5%	1-5%	\$81,710.34	26,338	\$3.10	-0.58%	26338	1.39%	2.39%	
\$109,573.15	\$3.21	31.54%	2.76%	0	5%	0-5%		5% to < 10%	1-10%	\$399,674.39	138,128	\$2.89	-7.27%	27626	6.35%	0.87%	
\$105,137.95	\$3.23	25.48%	3.36%	0	5%	0-5%		Over 10%	1-OVER 10%	\$611,464.50	223,271	\$2.74	-12.24%	27909	7.44%	0.61%	
\$84,949.50	\$3.33	-1.86%	6.78%	2	10%	2-10%		Over 10%	1	\$1,092,849.22	387,737	\$2.82	-9.68%	27695	6.61%	0.68%	
\$81,710.34	\$3.10	1.39%	-0.58%	1	5%	1-5%											
\$95,113.19	\$3.22	13.87%	3.04%	0	5%	0-5%											
\$60,665.67	\$3.96	-41.05%	26.94%	2	OVER 10%	2-OVER 10%											
\$82,860.62	\$3.53	-9.52%	12.97%	2	OVER 10%	2-OVER 10%											
\$68,472.52	\$3.08	-14.46%	-1.25%	0	5%	0-5%											
\$75,143.95	\$2.85	1.67%	-8.82%	1	10%	1-10%											

Sales \$: If the criteria in column U matches the criteria in column Q, then sum together the Final Weighted Actual Sales \$ (column K)

Sales Units: If the criteria in column U matches column Q, then sum together Final Weighted Sales Units (column I)

Avg Price: Sales Dollars / Sales Units

Price INC/DEC: (Avg Price based on Criteria - Total Average Price)/Total Average Price

Avg Sales: If the criteria in column U matches the criteria in column Q, then average the Final Weighted Sales units

Sales INC/DEC: (Avg. Sales based on Criteria – Avg Units Weighted) / Avg Units Weighted

Increase/Decrease Each 1%: For every 1% change in price, the effect on sales. (Sales INC/DEC % / Price INC/DEC %)

Forecasted Data Recap

A similar layout as the Historic Recap but includes the predictions (forecasts) of the price increase or decrease you chose in the input sheet. In this case, that number was \$3.30. Sales with seasonality for historic data is calculated by **dividing** actual sales by the season curve while the forecasted sales are calculated by **multiplying** the actual sales by the season curve.

WEEK	FORECAST	SEASON CURVE	SALES w/SEASONALITY	SALES		STORE PLACEMENT	Final Weighted Sales	Sales Dollars	Avg Price	% From AVG Units	% from AVG Price
				AD WEEK	WITH AD & SEASON						
1	27,644	1.00	27,727	n	27,727	4	27,727	\$96,653.91	\$3.49	22.70%	5.63%
2	21,970	0.64	13,988	n	13,988	4	13,988	\$55,804.78	\$3.99	-38.10%	20.89%
3	26,668	0.92	24,623	n	24,623	4	24,623	\$82,648.33	\$3.36	8.96%	1.72%
4	25,233	1.04	26,356	n	26,356	4	26,356	\$87,654.26	\$3.33	16.63%	0.78%
5	27,740	0.66	18,278	n	18,278	4	18,278	\$65,905.43	\$3.61	-19.12%	9.27%
6	31,181	0.67	20,870	n	20,870	4	20,870	\$70,773.61	\$3.39	-7.65%	2.76%
7	29,745	0.70	20,829	n	20,829	4	20,829	\$71,048.57	\$3.41	-7.83%	3.36%
8	23,263	0.85	19,682	n	19,682	4	19,682	\$69,357.52	\$3.52	-12.90%	6.78%
9	24,034	0.80	19,180	n	19,180	4	19,180	\$62,927.43	\$3.28	-15.12%	-0.58%
10	26,992	0.69	18,675	n	18,675	4	18,675	\$63,502.90	\$3.40	-17.36%	3.04%

Conclusion: Scenarios

The result of the model provides what we really want to know- what effect does changing the price have on our sales. Based on the number of correlations, we can make our assumptions. In this case, a \$.50 increase in price corresponds to a 24.37% decrease in sales, while a \$.25 decrease in price corresponds to a 16.43% increase in sales.

	ACT LY	FORECASTED TY	VARIANCE %	VARIANCE
TOT UNIT SALES	1,287,747	1,175,096	-8.75%	112,651
DOLLAR SALES	\$4,018,433	\$3,877,818	-3.50%	\$140,615
PROFIT	\$3,335,927	\$3,225,640	-3.31%	\$110,287
AVG SALES PER WEEK	24,297	22,598	-6.99%	1,699

	FORECASTED	
PRICE-SALES CORRELATION	HISTORIC COUNT	COUNT
PRICE UP/UNITS DOWN	11	21
PRICE DOWN/UNITS UP	14	15

	VAR LY	% UNIT	% SALES \$	% PROFIT \$
	AVG PRICE	AVG PRICE	INC/DEC	INC/DEC
PRICE INCREASE	\$0.50	16.02%	-24.37%	\$3,526,136
	\$0.75	24.03%	-36.55%	\$2,708,858
	\$1.00	32.05%	-48.74%	\$2,353,659
	\$1.25	40.06%	-60.92%	\$1,920,006
PRICE DECREASE	\$0.10	-3.20%	2.19%	\$3,974,852
	\$0.25	-8.01%	5.48%	\$3,898,905
	\$0.75	-24.03%	16.43%	\$3,554,080
	\$1.00	-32.05%	21.90%	\$3,328,783

SKU RATIONALIZATION

Whether you operate a brick & mortar store, ecommerce website or a combination of them, making the right assortment choices generally determines the level of your success. Planning the assortment requires a combination of art and science. The art is picking desirable merchandise and the science is determining whether it will be productive for you- meaning make you money. Studying the performance of your past purchases and how well they sold can help you to continually improve your decision-making capability. As we have already discussed in other chapters in the primer, determining what is “good” or “bad” performance is important. It comes down to the financial plan for the business. How much money will it take to keep your lights on, and how much to fuel your growth? Understanding what number you have to hit is a good starting point. SKU rationalization or optimization, whichever term you prefer is the equivalent of Monday morning quarterbacking. Taking a step back and seeing what plays worked well and which didn’t will help you the next time you step on the field. Was there something in common with all the top sellers? Was there a color, size, silhouette, price or other attribute in common with poor performers? A lot of companies conduct an end of season analysis which is very helpful. Rationalization takes it to the next level- comparing how categories compared to each other and how items within categories compared to each other. The analysis shows you what the optimal assortment should have been. “Buying without boundaries” often leads to mounting stagnant inventory which is why we believe so much in adding disciplines in the planning process to constantly try and optimize the assortment.

There are a variety of methodologies and formats that can used to conduct SKU rationalization. More complex rationalization uses a multitude of factors and more advanced algorithms, but even a simple analysis can yield great insights. For our example we will use a simple format and methodology.

Step 1: Determine What Statistics to Include in the Analysis.

The KPI’s chosen for the analysis should be based on the retail philosophy. For example, is your goal to sell as many units as you can without regard to profit, selling less but making the most profit or some combination of that? You can make a chart of the key statistics for determining performance and then weight the importance of each. This will be helpful when determining a composite ranking of performance that weights the statistics based on your retail philosophy.

Philosophy	Sales Units	Sales Revenue	Sell Through%	GP\$	Total
Traffic Driven	60%	10%	30%	0%	100%
Profit Driven	20%	30%	10%	40%	100%
Middle Ground	30%	30%	20%	20%	100%

In our example, our goal is to simply turn as much product as quickly as possible. So, we will look at sell through- in fact we will weight it 100%.

Step 2: Establish a Baseline.

To get started, we need to set a baseline. The baseline could be a specific level of performance you deem as acceptable, and compare actuals against that, or use the actuals to derive average performance for each category. Because some items may have shipped at different times, we generally like to look at the first 6-8 full weeks of selling for items planned to sell for at least 6 months. For fast fashion first 4 weeks of selling may be more appropriate.

Step 3: Create Quartiles Based on the Average Performance.

For our example below in Jackets, the average sold in the 1st 8 weeks was 56% of stock. Quartiles are then derived from the 56%.

Step 4: Assign Items to a Quartile.

The top quartile represents the best performance. You can see which items fall into which quartile based on their sell through in the first 8 weeks. The Denim Bolero W/Embroidery sold through at 76% which puts it in the 1st quartile, while the Jacket with Contrast Cuffs sold only 8%, putting it in the 4th quartile. Be mindful of the overall performance- maybe even the bottom quartile was still acceptable, or the top performance was not acceptable.

Description	Sales 8 Weeks	Ship Qty	% Sold 1st 8 Wks	Quartile	# Items
DENIM KNICKER W/APPLIQUE	750	1248	60%	1	1
KNICKER W/CROCHET APPLIQUE	558	1668	33%	3	1
Total Capris	1308	2916	45%	2	2
DENIM BOLERO W/EMBROIDERY	775	1020	76%	1	1
BOLERO W/CROCHET APPLIQUE	852	1621	53%	1	1
JACKET WITH CONTRAST CUFFS	9	120	8%	4	1
ACTIVE JACKET W/LACE APPLIQUE & BLING	329	746	44%	2	1
Total Jackets	1965	3507	56%	1	4
ACTIVE HOODIE W/FOIL	764	2556	30%	4	1
L/S LACE SASH WRAP TOP	295	521	57%	1	1
Total LS Knit Shirts	1059	3077	34%	3	2
MULTIMEDIA LOW-RISE BOOTLEG JEAN	520	1581	33%	3	1
CUFFED SLIM LEG JEAN	129	339	38%	3	1
CARGO PANT W/EMBROIDERY	961	1756	55%	1	1
JEAN WITH CONTRAST FACING	31	200	16%	4	1
ACTIVE PANT W/ LACE APPLIQUE & BLING	299	694	43%	2	1
Total Pants	1940	4570	42%	2	5
S/S LOGO TOP WITH SMOCKED SLEEVE	1556	4164	37%	3	1
LACE TEE W/TRICON LINING	2376	3960	60%	1	1
S/S LOGO TOP W/SMOCKED SLEEVE	955	1902	50%	1	1
S/S LOGO TEE W/SMOCKING	94	252	37%	3	1
S/S SASH WRAP TOP	415	978	42%	2	1
FLORAL LACE TOP	736	1296	57%	1	1
S/S LOGO TEE W/EMPIRE SMOCKING	465	1128	41%	2	1
TANK WITH LACE APPLIQUE & BLING	505	1294	39%	3	1
Total SS Knit Shirts	7102	14974	47%	1	8

Step 5: Generate A Category Analysis

The category analysis shows us how many items fall into each quartile. This helps us understand what percentage of our assortment worked well, and what didn't. For our example we assume that any performance except for 4th quartile performance is acceptable. Of course, you can make your own assumptions based on your business. Our summary breaks down the performance into 3 segments- above average, average and below average. In the above average segment, we determine how many items are optimal by taking the average between the total item count and count of items in quartiles 1,2 and 3. For the average segment, we add 25% to the count of

items that fall in quartiles 1,2 and 3. That's because in the optimal mix we would want have wanted more items to fall in the 1st, 2nd and 3rd quartiles. Finally, in the below average segment, we only want items that fell into the 1st, 2nd or 3rd quartile. The percentage of optimal items is calculated on the total number of items. In this case, the analysis is telling us that the optimal assortment would have consisted of 98% of the above average items, 78% of the average items and 31% of the below average items.

CATEGORY ANALYSIS														
ABOVE AVERAGE					AVERAGE					BELOW AVERAGE				
Total # Items	# Items > 4th QTL	% of Total Items	OPT # ITEMS		Total # Items	# Items > 4th QTL	% of Total Items	OPT # ITEMS		Total # Items	# Items > 4th QTL	% of Total Items	OPT # ITEMS	
2	2	100%	2		4	3	75%	4		12	5	42%	5	
1	1	100%	1		2	1	50%	1		5	2	40%	2	
8	8	100%	8	Jackets	7	2	29%	2	Jackets	7	2	29%	2	
3	3	100%	3	LS Knit Shirts	7	2	29%	2	SS Knit Shirts	7	2	29%	2	
1	1	100%	1	Capris	5	1	20%	1	LS Knit Shirts	5	1	20%	1	
1	1	100%	1		1	0	0%	0	Shortalls	1	0	0%	0	
1	1	100%	1		1	0	0%	0	Sweaters	1	0	0%	0	
5	4	80%	5		1	0	0%	0	SS Woven Shirts	1	0	0%	0	
TOTAL	22	21	95%	22	TOTAL	8	5	63%	6	TOTAL	39	12	31%	12
% OPT Items to Total->				98%	% OPT Items to Total->				78%	% OPT Items to Total->				31%

Step 6: Visualize The Results

After creating the analysis, we need to display the data in a more visual way. We do this by simply listing each item in the quartiles they were ranked in.

1ST QUARTILE	2ND QUARTILE	3RD QUARTILE	4TH QUARTILE
1st Ship DENIM KNICKER W/APPLIQUE	1st Ship ACTIVE JACKET W/LACE APPLIQUE & BLING	1st Ship KNICKER W/CROCHET APPLIQUE	1st Ship JACKET WITH CONTRASTCUFFS
1st Ship DENIM BOLERO W/EMBROIDERY	1st Ship ACTIVE PANT W/ LACE APPLIQUE & BLING	1st Ship MULTIMEDIA LOW-RISE BOOTLEG JEAN	1st Ship ACTIVE HOODIE W/FOIL
1st Ship BOLERO W/CROCHET APPLIQUE	1st Ship S/S SASH WRAP TOP	1st Ship CUFFED SLIM LEG JEAN	1st Ship JEAN WITH CONTRAST FACING
1st Ship KNIT DRESS WITH RUFFLES & VOILE	1st Ship S/S LOGO TEE W/EMPIRE SMOCKING	1st Ship S/S LOGO TOP WITH SMOCKED SLEEVE	1st Ship LACE TRIMMED TUNIC W/CAMI
1st Ship L/S LACE SASH WRAP TOP	2nd Ship CARGO PANT W/EMBROIDERY	1st Ship S/S LOGO TEE W/SMOCKING	2nd Ship DENIM JACKET WITH FOIL
1st Ship CARGO PANT W/EMBROIDERY	2nd Ship CUFFED STRAIGHT LEG JEAN	1st Ship TANK WITH LACE APPLIQUE & BLING	2nd Ship BASI TEE W/APPLIQUE HEART
1st Ship RACHEL LACE TEE W/TRICON LINING		1st Ship CROPPED SWEATER W/CAMI & LEG WARMERS	2nd Ship KNICKERS W/FLAP POCKETS
1st Ship S/S LOGO TOP W/SMOCKED SLEEVE		2nd Ship DENIM PANT W/FOIL	2nd Ship BOLERO W/CROCHET APPLIQUE
1st Ship FLORAL LACE TOP		2nd Ship BASIC TEE W/FOIL LOGO	2nd Ship JACKET W/APPLIQUE
1st Ship DENIM CARGO SKIRT W/APPLIQUE		2nd Ship DENIM MINI SKIRT W/FOIL	2nd Ship JACKET WITH CONTRASTCUFFS
1st Ship CARGO SKIRT W/CROCHET APPLIQUE		2nd Ship ACTIVE JACKET W/LACE APPLIQUE & BLING	2nd Ship ACTIVE JACKET W/EMBROIDERY
1st Ship SKIRT W/PLEATED BACK		2nd Ship LACE TRIMMED TUNIC W/CAMI	2nd Ship TEE WITH LACE JACKET
2nd Ship blazer w/screenprint		2nd Ship SKIRT W/PLEATED BACK	2nd Ship JERSEY TEE W/LACE SLEEVES
2nd Ship TWILL FLAPPED POCKET JEAN			2nd Ship LS TEE W/ LACE TRIM
2nd Ship KNICKER W/CROCHET APPLIQUE			2nd Ship L/S RAGLAN TEE
2nd Ship KNIT DRESS WITH RUFFLES & VOILE			2nd Ship CARGO PANT
2nd Ship L/S LACE SASH WRAP TOP			2nd Ship LOW RISE BOOTLEG JEAN W/BELT
2nd Ship ACTIVE PANT W/ LACE APPLIQUE & BLING			2nd Ship MULTIMEDIA LOW-RISE BOOTLEG JEAN
2nd Ship FLORAL LACE TOP			2nd Ship CUFFED SLIM LEG JEAN
			2nd Ship JEAN WITH CONTRAST FACING
			2nd Ship BOOTLEG JEAN W/VICTORIAN LADY
			2nd Ship ACTIVE PANT W/LUREX EMBROIDERY
			2nd Ship BABY DOLL TOP W/VELOUR TRIM
			2nd Ship S/S LOGO TEE W/SMOCKING
			2nd Ship S/S JERSEY TEE W/PUFF SLEEVES
			2nd Ship S/S TEE W/LACE TRIM
			2nd Ship TWILL SHORTALL W/METAL STUDS
			2nd Ship DENIM JUMPER
			2nd Ship CARGO SKIRT W/CROCHET APPLIQUE
			2nd Ship SKIRT W/LACE
			2nd Ship CROPPED SWEATER W/CAMI & LEG WARMERS

But an even better way is to replace the text with an image of each item. That way you can visually see if there are specific product attributes that contributed to certain performances. In the example below, it's obvious that tops did better than other product categories. This is isn't just useful to buyers and planners, but to designers as well. Visualizing what worked and what didn't helps designers create more products apt to sell, while saving money in sampling and other related product development costs.

1st Quartile

2nd Quartile

3rd Quartile

4th Quartile

Best Performance ← → Weakest Performance



ESTIMATING LOST SALES

Determining lost sales is essential for any planner to understand the true sales potential of an item. It is often overlooked when forecasting. Because most forecasts are based on history- that history needs to be accurate and realistic. For example, if you are using history for a forecast but half of the stores were sold out, your estimates will be missing out on a lot of potential. In this section we'll show you how to determine lost sales, but before we do that let's define what a lost sale is.

There are different ways to calculate lost sales. The best estimate requires data at the lowest level of detail- SKU by store. Some level of inventory is required to generate a rate of sale. When inventory is below that requirement a lost sale may have occurred. If there is no inventory (On Hand=0), then there is no chance of generating a sale. However, there are cases when On Hand >0 could still cause lost sales. For example, if every store uses 1 unit as a display, then an out of stock is anything below 2 units. For a table presentation, having 1 or 2 units may not meet presentation standards. Once you establish that inventory requirement you can apply that logic and calculate lost sales.

An important consideration in addition to inventory is time. Most planners calculate lost sales only for day-in, day-out replenishment SKUs, however that is not always the case. If seasonal or fashion items sell out with several weeks of full price selling remaining, you could also be missing sales. The steps below for estimating lost sales will work for either case. Here the steps to do that:

1. Select a time frame to use in the analysis. Somewhere between 8 and 16 weeks is usually a good starting point.
2. For each SKU-store combination, count the number of times there was an inventory stock out.
3. For each SKU-store combination, determine the rate of sale (ROS) when that store was *in* stock. This is the average units sold over the period when OH > X.
4. Multiply the ROS by the number of times the store was out of stock. That's the lost sales.
5. Sum the lost sales across all stores to determine the total lost sales for the item. Multiply that by the average selling price to determine lost sales dollars.

STORE ID	LOCATION	# WEEKS OUT	ROS4	ROS8	ROS13	OH	OO	MAX ROS	LOST UNITS
47	Portage, MI	3	12	2.8	1.6	0	0	12.0	36
29	Detroit, MI	3	9	2.0	1.1	2	0	9.0	27
18	West Lafayette, IN	3	8	2.8	1.8	0	0	8.0	24
44	Boardman, OH	3	8	1.8	1.5	0	0	8.0	24
28	Defiance, OH	3	6	6.0	6.0	0	0	6.0	18
37	Bloomington, IL	3	6	1.2	0.7	9	0	6.0	18
39	Lincoln Park, MI	3	6	1.2	0.6	0	0	6.0	18
40	Holland, MI	3	6	6.0	1.8	3	0	6.0	18

Example: Store 47

Out of stock for last 3 weeks.

Highest rate of sale was 12 units per week.

12 X 3 = 36 potentially lost units

Visualizing the Data

The rules for calculating lost sales are not complicated but managing thousands or millions of SKU-store combinations can be. Most of the analysis can be done in Microsoft Excel, but you can also program common BI tools to do it. Advanced filtering can help expose items and stores that contribute the most to lost sales. Adding trend markers and color to signify outs is also helpful in seeing where problems lie. This example provides information to help prioritize which items need action.

Some of the key statistics:

Out Now: Count of stores currently out of stock (OH=0)

Lost 6 WK Average: The weekly average lost sales over the last 6 weeks.

Lost LW: The lost sales for last week.

Trend: The variance between lost sales last week and the previous 6-week average.

ROS4, 8, 13: The rate of sale over different periods of time.

MAX ROS: Uses the highest (maximum) of the 4-, 8- or 13-week rate of sale as the basis for calculating lost sales. For a less aggressive approach, use the minimum or median of the 3 periods or some other blend that makes sense for your business (ex. peak ROS vs. non-peak ROS).

TGT OH: Target on hand- this is the quantity calculated by store based on a given weeks of supply model. It adds lost sales back into the current rate of sale for that SKU-store.

Replen: The recommended at once replenishment quantity. Target On Hand – Current On Hand + On Order, rounded to nearest case pack.

Supplier ABC - Lost Sales Tracking

Lost Last Week: 668 Units, \$33,613

By Department

By SKU

Department	OUT NOW	LOST 6 WK AV	Color	Size	OH	YTDU	OUT NOW	ROS4	ROS8	ROS13	MAX ROS	LOST LW	LOST 6 WK AV	TREND	TGT OH	REPLEN
Top of Bed	3,614	1,917.6	White	24x38	2,336	5,930	71	150.5	154.5	172.0	259.99	76	21.9	↑	2,600	264
Dec Pillows	2,815	2,077.2	Stone Grey	24x38	1,242	8,151	110	195.6	203.6	304.0	414.42	168	105.7	↑	4,144	2,902
Pet	2,515	1,680.7	Birch	20x30	2,837	9,889	66	238.1	303.0	337.6	431.87	74	123.8	↓	4,319	1,482
Bath	2,504	3,920.2	Birch	24x38	1,871	4,875	74	134.3	130.5	153.6	224.95	86	27.7	↑	2,249	378
Quilts	2,152	616.5	White	20 x 30	2,993	9,401	62	271.8	315.7	357.1	480.18	87	152.2	↓	4,802	1,809
Throws	1,604	2,256.3	Stone Grey	20 x 30	1,879	9,081	128	358.5	370.4	455.2	588.90	176	319.1	↓	5,889	4,010
Total	15,204	12,468.6			13,158	47,327	511	1,348.7	1,477.8	1,779.5	2,400.31	668	750.3	-82.05	24,003	10,845

By Store

Location	YTDU	OH	WK2OH	WK3OH	WK4OH	WK5OH	WK6OH	WK7OH	MAX ROS	LOST LW	LOST LAST 6 WKS
HUNTINGTON BEAC, CA	75	6	5	3	2	4	25	34	6.03	5	9.5
CHELMSFORD, MA	49	0	0	0	1	2	14	3	4.70	5	14.1
ONALASKA, WI	49	0	0	0	1	1	5	0	4.67	5	14.0
EASTON, PA	57	0	0	3	3	6	15	23	4.64	5	9.3
EAST WALPOLE, MA	51	0	1	1	2	1	8	-1	4.60	5	4.6
KOKOMO, IN	47	0	0	0	9	4	16	28	4.60	5	13.8
TURNERSVILLE, NJ	34	0	1	0	0	0	0	0	4.57	5	22.9
STRONGSVILLE, OH	43	0	1	1	0	0	1	10	4.56	5	13.7
RAMSEY, NJ	52	0	0	1	1	1	7	2	4.55	5	9.1
ELDERSBURG, MD	37	0	0	0	1	0	0	5	4.50	5	22.5
CLARKSBURG, WV	31	0	0	0	1	0	0	8	4.50	5	22.5
FAIRVIEW PARK, OH	51	0	2	3	2	4	14	30	4.45	4	4.5
WHEATON, IL	45	0	0	1	0	0	2	16	4.44	4	17.8
GREECE, NY	35	0	0	1	1	3	9	-5	4.43	4	8.9
WOODSTOCK, GA	58	0	2	2	3	2	16	19	4.42	4	4.4
BENSALEM, PA	56	0	0	3	3	3	14	25	4.36	4	8.7
ROCHESTER, NY	26	0	0	0	1	0	2	-2	4.33	4	17.3
CHICAGO, IL	57	0	1	5	5	9	21	26	4.25	4	4.3

Other Considerations

Calculating lost sales for seasonal items is helpful in determining what the original potential should have been. Many retailers use the same set of model stocks for every set, yet by studying items based on their product attributes a more optimal inventory allocation can be attained.

During the lost sales analysis you can determine the high velocity stores by item type. You can then prioritize them in replenishment scenarios to ensure you get the most bang for your buck. Learning when the peak sales occur and flowing product appropriately to ensure it is there at the right time.

Additional store level analysis can help predict when a store will run out. From the data in this exercise, you can calculate the rate of sale and remaining weeks of supply. Add the anticipated out of stock date by simply adding the number of remaining weeks calculated to the current date. Then sort based on nearest date to see which stores will run out first. They can be prioritized for replenishment.

ECOMMERCE & DROP SHIP INVENTORY PLANNING

eCommerce has become mainstream, and most retailers have adapted accordingly. Yet many wholesalers struggle to forecast and manage inventory for sales generated from online sources. Part of the reason may be that every retailer reports online sales differently. For some, online sales show up as a single or group of store numbers in their data feeds. Others report it completely separately from brick and mortar. It also depends on whether wholesalers ship product for online sales to the retailer or whether they ship it directly to the consumer. The latter is what we call drop shipping.

A significant number of resources may be required on the part of the wholesaler to drop ship. Most are set up to ship in bulk rather than individual packages to single addresses. Depending on whether product is part of a retailer's assortment or an extension, the risk of owning product is also a significant financial concern.

Managing the drop ship business requires the wholesaler to think and act more like a retail buyer. This section will provide wholesalers with a practical way to track drop ship performance and manage inventory.

Getting the Data

The data should be conceptualized the same way retailers manage their data. Create a weekly feed of drop ship orders shipped. This can be summarized with total units and cost dollars by item, by retailer. This data would most likely come from your ERP system. While the source data may contain individual customer names and addresses, for this purpose that level of data is not required.

	A	D	E	F	G	H	M	N
1	Customer Name	Item Number	Item Description	QTY Sold	Retail per Unit	Ticketed Retail	Color	SIZE
2	AMAZON SELLER	1	Item 1	1	\$179.99	\$179.99	MULTI	TWIN
3	AMAZON SELLER	2	Item 2	1	\$229.99	\$229.99	MULTI	TWIN
4	AMAZON SELLER	3	Item 3	1	\$128.00	\$128.00		
5	AMAZON SELLER	4	Item 4	1	\$24.00	\$24.00	INDIGO	3.11x3.11x
6	AMAZON SELLER	5	Item 5	1	\$278.00	\$278.00	SNOW	QUEEN
7	AMAZON SELLER	6	Item 6	1	\$328.00	\$328.00	SNOW	KING
8	MACYSDS	7	Item 7	1	\$248.00	\$248.00	SEAL	KING
9	MACYSDS	8	Item 8	1	\$278.00	\$278.00	NATURAL	FULL/QUEEN
10	MACYSDS	9	Item 9	1	\$279.99	\$279.99	MULTI	TWIN
11	MACYSDS	10	Item 10	1	\$98.00	\$98.00	CHARCOAL	50X70
12	MACYSDS	11	Item 11	1	\$59.99	\$59.99	WHITE	KING
13	MACYSDS	12	Item 12	2	\$49.00	\$98.00	PEBBLE	20"X20"
14	MACYSDS	13	Item 13	1	\$278.00	\$278.00	NATURAL	FULL/QUEEN
15	MACYSDS	14	Item 14	1	\$199.00	\$199.00	CHAMBRAY	QUEEN
16	NEIMANDROPSHI	15	Item 15	1	\$128.00	\$128.00		
17	NEIMANDROPSHI	16	Item 16	1	\$128.00	\$128.00		
18	NEIMANDROPSHI	17	Item 17	1	\$229.99	\$229.99	MULTI	TWIN
19	NEIMANDROPSHI	18	Item 18	1	\$99.99	\$99.99	GRAY	48 X 72
20	S DROPSHIP	19	Item 19	1	\$49.00	\$49.00		
21	S DROPSHIP	20	Item 20	1	\$98.00	\$98.00	FOREST	50X70
22	S DROPSHIP	21	Item 21	1	\$128.00	\$128.00	IMPERIAL	50X70
23	S DROPSHIP	22	Item 22	1	\$279.00	\$279.00	MULTI	TWIN

You will also need an inventory file that has available to sell and on order (work in process). You will have to determine if inventory is specifically allocated for drop ship or if it is shared inventory.

	A	B	G	H	J	L	M	O	P	Q
1	Item Number	Description	Status	Color/ Pattern	Size	QTY OO	QTY On Hand	QTY Allocated	Cust Ord Qty	QTY Available
2	1	Item 1	ACTIVE	SNOW LINEN	STANDARD	0	9,802	16	240	9,786
3	2	Item 2	ACTIVE	OATMEAL	STANDARD	0	7,068	0	800	7,068
4	3	Item 3	ACTIVE	SEAL	STANDARD	0	6,966	0	758	6,966
5	4	Item 4	ACTIVE	NEUTRAL	BATH RUG	0	6,142	0	524	6,142
6	5	Item 5	ACTIVE	AGAVE	20X32	0	6,139	8	3,990	6,131
7	6	Item 6	ACTIVE	SEAL	STANDARD	0	6,062	0	776	6,062
8	7	Item 7	ACTIVE	SIDEWALK	STANDARD	0	6,032	0	620	6,032
9	8	Item 8	ACTIVE	AGAVE	72"X72"	0	5,468	44	7,936	5,424
10	9	Item 9	ACTIVE	QUARTZ	50"X70"	0	6,380	1,672	0	4,708
11	10	Item 10	ACTIVE	ROSEWOOD	50X70	0	4,561	0	54	4,561
12	11	Item 11	ACTIVE	WHEATFIELD	STANDARD	0	4,394	0	600	4,394
13	12	Item 12	ACTIVE	SNOW	50X70	1,168	4,040	0	0	4,040

Determining Performance Baselines

We will track performance of drop ship product in much the same way we do for brick and mortar with a few caveats. The first is that the rate of sale may be significantly less- especially on “fringe” SKUs. Ultimately you will have to determine what level performance makes financial and/or merchandising sense to warrant keeping an item in the assortment. Keeping track of each item’s status will be key. Having an attribute for status (like description, color, size, etc.) enables you to sort and prioritize items for action. While some companies opt for only 2 statuses- active or inactive- we recommend 4 or 5. Our statuses include active, discontinue, watch, sell down, mark down and expired. This tells us which stage each item is in its lifecycle.

To keep it simple, we will use average unit and dollar sales to determine the benchmarks. You could also include profitability or any other statistic you think is relevant. Time plays an important element here. Since items may not generate sales every week, determine a period that makes sense for your business. We will use an 8-week average as the benchmark.

When we look across all our items, we find that the average is 3 units and \$150 per week. From there we can tier each item’s performance. We use top performer, above average, average, below average and poor performer. Based on what tier an item’s performance falls in; determines what action we may want to take. Here is an example:

<i>Average Sales \$ Between:</i>		
>\$500	\$501	Top performer
\$500	\$201	Above Average
\$200	\$120	Average
\$119	\$51	Below Average
\$50	\$0	Poor Performer

<i>Average Sales Units Between:</i>		
>11	11	Top Performer
10	5	Above Average
4	2	Average
1	0	Below Average

Inventory Health

It’s not just about sales. The real cost here is owning the inventory. Monitoring it is critical to ensure an acceptable return on investment. Like sales benchmarks, we categorize inventory levels based on the weeks of supply as determine by the rate of sale. The tiers include healthy, low stock, critical low stock, temporarily out of stock, surplus and extreme surplus. Here is an example of how we broke down the tiers:

<i>Weeks of Supply:</i>		
> 25	25	Extreme Surplus
17	24	Surplus
9	16	Healthy
5	8	Low Stock
1	4	Critical Low Stock
0	0	Out of Stock
If OH = 0		Out of Stock
If OH = 0 AND OO > 0		Temporarily Out of Stock

Determining Actions

Just knowing the performance doesn’t help you. Determining what action needs to be taken to constantly optimize the business is the key. What we want to do now is combine the sales performance with the inventory health to determine those actions. The chart below shows the actions we use and what they mean:

Action	Definition
Buy	Item is expected to run out of inventory within lead time.
Buy if Needed	Stock is low, review other considerations
Watch	Performance isn't spectacular, continue to monitor performance.
Sell Down	Performance isn't getting better, but inventory levels are manageable at current rate of sale.
Markdown	The rate of sale needs to be accelerated.
Discontinue	Inventory almost out, ensure item not purchased again.

Creating Scenarios

Now that we have sales benchmarks of what is good and bad, know how healthy our inventory is, and have some actions, we need to tie it all together. We do this by marrying the performance and inventory categories together to determine the appropriate action. For the purposes of this example, we just used the sales dollar performance and inventory health. You can add unit sales performance as well. Here is our example:

\$ Performance	Inventory Health	MATCH	Rec Action
Poor Performer	Extreme Surplus	Poor Performer-Extreme Surplus	Markdown
Poor Performer	Surplus	Poor Performer-Surplus	Markdown
Poor Performer	Healthy	Poor Performer-Healthy	Watch
Poor Performer	Low Stock	Poor Performer-Low Stock	Sell Down
Poor Performer	Critical Low Stock	Poor Performer-Critical Low Stock	Sell Down
Poor Performer	Temporarily Out of Stock	Poor Performer-Temporarily Out of Stock	Watch
Poor Performer	Out of Stock	Poor Performer-Out of Stock	Discontinue
Below Average	Extreme Surplus	Below Average-Extreme Surplus	Markdown
Below Average	Surplus	Below Average-Surplus	Watch or Markdown
Below Average	Healthy	Below Average-Healthy	Watch
Below Average	Low Stock	Below Average-Low Stock	Sell Down
Below Average	Critical Low Stock	Below Average-Critical Low Stock	Sell Down
Below Average	Temporarily Out of Stock	Below Average-Temporarily Out of Stock	Watch
Below Average	Out of Stock	Below Average-Out of Stock	Discontinue
Average	Extreme Surplus	Average-Extreme Surplus	Watch
Average	Surplus	Average-Surplus	Watch
Average	Healthy	Average-Healthy	Watch
Average	Low Stock	Average-Low Stock	Watch
Average	Critical Low Stock	Average-Critical Low Stock	Watch
Average	Temporarily Out of Stock	Average-Temporarily Out of Stock	Watch
Average	Out of Stock	Average-Out of Stock	Buy if Needed
Above Average	Extreme Surplus	Above Average-Extreme Surplus	Sell Down
Above Average	Surplus	Above Average-Surplus	Sell Down
Above Average	Healthy	Above Average-Healthy	Watch
Above Average	Low Stock	Above Average-Low Stock	Buy if Needed
Above Average	Critical Low Stock	Above Average-Critical Low Stock	Buy
Above Average	Temporarily Out of Stock	Above Average-Temporarily Out of Stock	Watch
Above Average	Out of Stock	Above Average-Out of Stock	Buy
Top Performer	Extreme Surplus	Top Performer-Extreme Surplus	Sell Down
Top Performer	Surplus	Top Performer-Surplus	Watch
Top Performer	Healthy	Top Performer-Healthy	Watch
Top Performer	Low Stock	Top Performer-Low Stock	Buy
Top Performer	Critical Low Stock	Top Performer-Critical Low Stock	Buy
Top Performer	Temporarily Out of Stock	Top Performer-Temporarily Out of Stock	Watch
Top Performer	Out of Stock	Top Performer-Out of Stock	Buy
Review History	Temporarily Out of Stock	Review History-Temporarily Out of Stock	Watch
Awaiting Restock	Temporarily Out of Stock	Awaiting Restock-Temporarily Out of Stock	Watch
Review History	Out of Stock	Review History-Out of Stock	Watch
Awaiting Restock	Out of Stock	Awaiting Restock-Out of Stock	Watch

Keep in mind, the more performance metrics you add to the scenarios, more combinations will have to be defined.

Reporting and Decision-Making Tool

The finished product is a report that shows all the statistics by item, the performance rankings, inventory health and recommended action. Some other key statistics are age (how long the item has been selling), expected out of stock date, status and profitability. All of these helps tell each item's "story". Ours looks something like this:

ITEM #	DESCRIPTION	STATUS	AGE(WKS)	LAST 8WKS UNITS	LW UNITS	LAST 8WKS SALES \$	LW SALES \$	AV 8 WK UNITS	AV 8 WK SALES \$	AVAIL	OO	AVAIL + OO	WOS	\$ PERFORMANCE	INVENTORY HEALTH	OOS DATE	REC ACTION
1	Item 1	ACTIVE	87	28	1	\$9,762	\$378	4	\$1,220	69		69	20	Top Performer	Low Stock	8/17/2022	Buy
2	Item 2	ACTIVE	130	101	8	\$9,112	\$784	13	\$1,139	337	2,750	3,087	27	Top Performer	Healthy	9/5/2022	Watch
3	Item 3	ACTIVE	128	87	6	\$7,965	\$588	11	\$996	1846	2,600	4,446	170	Top Performer	Extreme Surplus	9/27/2023	Sell Down
4	Item 4	ACTIVE	33	62	10	\$7,494	\$1,280	8	\$937	188		188	24	Top Performer	Healthy	8/29/2022	Watch
5	Item 5	WATCH	136	29	6	\$6,651	\$1,383	4	\$831	653	500	1,153	180	Top Performer	Extreme Surplus	10/25/2023	Sell Down
6	Item 6	ACTIVE	128	69	8	\$6,301	\$733	9	\$788	3775	1,100	4,875	438	Top Performer	Extreme Surplus	9/21/2025	Sell Down

When dealing with hundreds or thousands of items, add filters or write a macro that puts items that fall into the same category on separate tabs. For example, the buy tab is any item with a recommended action of buy or buy if needed.

To make the report even more useful, add simple calculations for buys and/or how deep to mark down products. This way the report becomes more of an all-in-one management tool for the drop ship business. To calculate buys you can use simple averages or build a more detailed algorithm that includes seasonality (sales curves), lead time and minimums. The forecast example in this primer can be used as a guide. An example of the finished output could look something like this:

DESCRIPTION	AGE (WKS)	AV 8 WK UNITS	AV 8 WK SALES \$	AVAIL	OO	AVAIL + OO	WOS	NEXT 8 WKS	NEXT 16 WKS	ANNUAL	FWD WOS	\$ PERFORMANCE	UNIT PERFORMANCE	INVENTORY HEALTH	OOS DATE	REC BUY
Item 1	87	4	\$1,220	69		69	19.7	72	143	511	7.6	Top Performer	Average	Low Stock	8/17/2022	400
Item 2	50	3	\$649	68		68	27.2	82	153	304	6.7	Top Performer	Average	Low Stock	8/10/2022	201
Item 3	167	9	\$641	170	2,750	2,920	20.0	176	347	1,241	7.7	Top Performer	Above Average	Low Stock	8/18/2022	
Item 4	67	2	\$591	17		17	8.5	41	82	292	3.3	Top Performer	Average	Critical Low Stock	7/17/2022	251
Item 5	92	2	\$441	1		1	0.4	49	97	347	0.2	Above Average	Average	Out of Stock	6/26/2022	317
Item 6	129	5	\$420	69	1,000	1,069	13.8	104	204	730	5.3	Above Average	Above Average	Low Stock	8/1/2022	
Item 7	30	2	\$393	9		9	4.2	69	130	258	1.0	Above Average	Average	Critical Low Stock	7/2/2022	220
Item 8	127	1	\$333	18		18	18.0	21	41	146	7.0	Above Average	Below Average	Low Stock	8/12/2022	116
Item 9	35	2	\$331	38		38	19.0	41	82	292	7.3	Above Average	Average	Low Stock	8/15/2022	230
Item 10	35	4	\$263	-36		-36	-8.7	85	168	602	OUT	Above Average	Average	Out of Stock	OUT	589
Item 11	90	5	\$242	87	350	437	17.0	106	209	748	6.6	Above Average	Above Average	Low Stock	8/9/2022	250
Item 12	113	1	\$232	-5		-5	-5.0	21	41	146	OUT	Above Average	Below Average	Out of Stock	OUT	139
Item 13	114	1	\$230					26	51	182	OUT	Above Average	Below Average	Out of Stock	OUT	168
Item 14	10	2	\$208	-172		-172	-76.4	47	92	328	OUT	Above Average	Average	Out of Stock	OUT	474
Item 15	120	1	\$179	-7		-7	-9.3	16	31	109	OUT	Average	Below Average	Out of Stock	OUT	108
Item 16	53	2	\$156	-21		-21	-8.8	49	97	347	OUT	Average	Average	Out of Stock	OUT	339
Item 17	47	2	\$137	-15		-15	-6.7	47	92	328	OUT	Average	Average	Out of Stock	OUT	317
Item 18	31	1	\$134	-8		-8	-9.1	18	36	128	OUT	Average	Below Average	Out of Stock	OUT	125

While these examples were built using Microsoft Excel, the same logic can also be applied in many of today's BI visualization tools such as Microsoft Power BI. This enables greater filtering, interaction and sharing capabilities. While it does require some more advanced programming and database knowledge, it is a very affordable and efficient way to manage this business.

Status	Action	Inventory Health	\$ Performance	Program	AVAIL	OO	AVAIL+OO	LW U	LW \$	L8 U	L8 AV U	Trend U	L8 \$	L8 AV \$	Trend \$	YTD U	YTD \$
ACTIVE	Buy	Critical Low Stock	Above Average	WHITECAP	25,690	23,190	48,880	73	\$6,485	413	52	↑	\$32,600	\$4,075	↑	627	\$44,971
DISCONTINUED	Discontinue	Extreme Surplus	Average	BLISS	3,638	12,800	16,438	58	\$4,782	395	49	↑	\$28,980	\$3,622	↑	854	\$57,922
ED	Markdown	Healthy	Below Average	EUPHORIA	4,364	13,450	17,814	23	\$2,114	209	26	↓	\$16,421	\$2,053	↓	449	\$31,663
MARKDOWN	Sell Down	Low Stock	Poor Performer	ANA	6,045	4,250	10,295	42	\$2,692	260	33	↑	\$16,137	\$2,017	↑	426	\$26,710
MD 30	Watch	Out of Stock	Top Performer	LOLA	248	0	248	7	\$2,496	46	6	↑	\$15,394	\$1,949	↑	64	\$21,820
MD 40		Surplus		OLIVIA	765	0	765	21	\$1,650	164	21	↑	\$13,926	\$1,741	↑	271	\$23,197
SELL DOWN		Temporarily Out of Stock	U Performance	KENZIE	735	0	735	6	\$1,818	47	6	↓	\$11,394	\$1,424	↓	92	\$19,351
WATCH			Above Average	SHEEPSKIN	1,921	0	1,921	1	\$72	80	10	↓	\$11,242	\$1,405	↓	165	\$23,060
			Average	ALONDRA	871	1,700	2,571	3	\$688	50	6	↓	\$10,551	\$1,319	↓	109	\$23,377
			Below Average	ALAHNA	711	0	711	9	\$1,838	48	6	↑	\$9,411	\$1,176	↑	60	\$11,671
			Top Performer	GLACIER	1,117	0	1,117	17	\$1,956	57	7	↑	\$8,920	\$1,115	↑	91	\$16,497
					216,699	86,024	302,723	523	\$51,003	4,136	517	6	\$389,400	\$48,675	\$2,328	7,615	\$677,127

Description	Status	AVAIL	WOS	OO	AVAIL+OO	LW U	L8 AV U	Trend U	LW \$	L8 AV \$	Trend \$	Inventory Health	\$ Performance	U Performance	Action
LOLA FUR COMFORTER SET - UGG	ACTIVE	74	19.7	0	74	4	4	↑	\$1,512	\$1,315	↓	Surplus	Top Performer	Average	Watch
ALONDRA COMFORTER SET	WATCH	662	132.4	500	1,162	3	5	↓	\$688	\$1,124	↓	Extreme Surplus	Top Performer	Above Average	Sell Down
THROW - UGG - BLISS SHERPA	ACTIVE	413	36.3	2,750	3,163	16	11	↑	\$1,450	\$1,006	↓	Extreme Surplus	Top Performer	Top Performer	Sell Down
WHITECAP THROW-UGG	ACTIVE	2,305	233.4	2,600	4,905	9	10	↓	\$831	\$891	↓	Extreme Surplus	Top Performer	Above Average	Sell Down
OLIVIA THROW	ACTIVE	207	29.6	0	207	8	7	↑	\$870	\$823	↓	Extreme Surplus	Top Performer	Above Average	Sell Down
EUPHORIA THROW-UGG	WATCH	453	61.4	1,700	2,153	6	7	↓	\$750	\$773	↓	Extreme Surplus	Top Performer	Above Average	Sell Down
WHITECAP THROW-UGG	ACTIVE	5,418	646.9	1,100	6,518	12	8	↑	\$1,125	\$720	↓	Extreme Surplus	Top Performer	Above Average	Sell Down
SUNSET CROSS COVERLET SET	ACTIVE	73	26.5	0	73	4	3	↑	\$1,120	\$719	↑	Extreme Surplus	Top Performer	Average	Sell Down
OLIVIA THROW	ACTIVE	232	40.3	0	232	6	6	↑	\$614	\$653	↓	Extreme Surplus	Top Performer	Above Average	Sell Down
LOLA FUR COMFORTER SET - JGG	ACTIVE	174	87.0	0	174	3	2	↑	\$984	\$634	↑	Extreme Surplus	Top Performer	Average	Sell Down
PENDLETON 15LB WEIGHTED BLANKET	ACTIVE	179	29.8	0	179	7	6	↑	\$700	\$600	↑	Extreme Surplus	Top Performer	Above Average	Sell Down
BLISS THROW	ACTIVE	339	45.2	1,000	1,339	4	8	↓	\$274	\$590	↓	Extreme Surplus	Top Performer	Above Average	Sell Down
BLISS THROW	ACTIVE	76	9.7	1,000	1,076	5	8	↓	\$431	\$578	↓	Healthy	Top Performer	Above Average	Watch
DJUNA COMFORTER SET	ACTIVE	670	446.7	0	670	1	2	↓	\$399	\$574	↓	Extreme Surplus	Top Performer	Below Average	Sell Down
RANCHO ARROYO COVERLET SET	ACTIVE	444	197.3	0	444	1	2	↓	\$139	\$573	↓	Extreme Surplus	Top Performer	Average	Sell Down
KEVIN COMFORTER SET	ACTIVE	24	12.8	0	24	1	2	↓	\$328	\$507	↓	Healthy	Top Performer	Below Average	Watch
NATIONAL PARK STRIPE PIECED QUILT	ACTIVE	405	202.5	0	405	5	2	↑	\$1,016	\$488	↑	Extreme Surplus	Above Average	Average	Sell Down

Other Reports

In addition to the main management tool, other reports can be helpful in managing the business. This year vs. last year, top and bottom items for the week, sales by retailer and sales to inventory ratios are all good. We mentioned the importance of status before. This is a great report that shows how much sales and how much inventory is categorized in each status “bucket”. The goal is to have most of your business in good, active merchandise. Having too much in markdown or discontinued can indicate the assortment isn’t a profitable one.

Status	Metric	3 Weeks Ago	2 Weeks Ago	1 Week Ago	Last Week
ACTIVE	Store On Hand	15,990	15,021	14,839	13,541
	Unit Sales	69	71	66	191
	Dol Sales	\$3,224	\$4,144	\$3,638	\$5,303
	AUR	\$46.72	\$58.36	\$55.13	\$27.77
MARKDOWN	Store On Hand	18,661	17,953	17,470	16,959
	Unit Sales	99	101	114	269
	Dol Sales	\$3,971	\$4,908	\$4,472	\$6,610
	AUR	\$40.11	\$48.60	\$39.23	\$24.57
MD 30	Store On Hand	757	752	748	746
	Unit Sales	2	5	4	2
	Dol Sales	\$26	\$65	\$52	\$26
	AUR	\$13.00	\$13.00	\$13.00	\$13.00
MD 40	Store On Hand	2,331	2,319	2,306	2,290
	Unit Sales	13	12	3	10
	Dol Sales	\$169	\$156	\$45	\$163
	AUR	\$13.00	\$13.00	\$15.00	\$16.29
SELL DOWN	Store On Hand	35,944	33,773	33,953	30,991
	Unit Sales	82	87	81	102
	Dol Sales	\$3,991	\$5,260	\$4,357	\$4,930
	AUR	\$48.67	\$60.46	\$53.80	\$48.33
WATCH	Store On Hand	13,175	9,166	8,746	8,163
	Unit Sales	139	118	109	273
	Dol Sales	\$5,605	\$6,104	\$4,795	\$5,382
	AUR	\$40.32	\$51.73	\$43.99	\$19.72

MARGIN ASSISTANCE REQUEST EXERCISE

Many retailers today rely on their supplier partners for financial support- to “margin” them up to an agreed upon level. That level depends greatly on what product category it is. The key is to agree on a reasonable gross margin percent that is reflective of the realistic environment for that category. Margin reconciliation has generated a lot of contentious conversation over the past several years. Regardless of which side of the conversation you are on, you can ensure there are no “surprises” at the end of the season by consistently tracking margin and monitoring the elements that make a program successful or not. From the first few weeks store execution plays a major role in determining the ultimate margin- especially if you have a seasonal item with a specific out of stock date. That means you need the retailer to do everything in their power to make sure your items are front and center from day one and given full opportunity to be successful. Suppliers shouldn’t wait until a week before the out of stock date to ask for action if its required- check store execution frequently and actively be in front of any problems, even recommending early markdowns to save deeper ones later on.

At the end of the season the retailer may present their supplier partners with a reconciliation and request for financial assistance. A good planner should validate all the numbers- sales, inventory receipts, markdowns, etc. There are several methodologies when it comes to reconciling actual gross profit with planned gross profit. Many retailers use a method that takes into consideration the cost basis of product and additional “loads” (shrinkage, merchandise handling, etc.). This exercise walks you through the process of determining what (if anything) is owed based on a GP plan of 42%. Several data sources are required: a scorecard for the relevant time period, previous period reconciliation, validation of cost concessions, alternative data source to validate sales (EDI, weekly website report downloads). For the purpose of this exercise, assume that the reconciliation is based on both departments listed in the scorecard below. The reconciliation grid is color coded to show what data source to use for the key fields that aren’t pure calculations. Follow the instructions below to fill in all the open boxes in the grids. The solution appears on page 29.

Step 1: In the Margin Reconciliation grid, fill in the yellow (scorecard) fields first.

Step 2: Enter the cost purchases from the Buyer/Planner calculations. If not provided, use your shipping records and reports.

Step 3: Calculate the Actual Gross Profit (GP\$) using the Cost of Goods Sold (COGS) formula listed below.

Step 4: Multiply the Sales \$ by the Plan Gross Profit % to determine the Plan Gross Profit \$.

Step 5: Subtract the Plan Gross Profit \$ from the Actual Gross Profit \$ to determine the shortfall or surplus.

Supplier Scorecard															
SUB	Sales \$		Units Sold		Markdowns			Receipts	Maintained Margin			Cost Conc	Gross Profit (30)		
	TY \$	% +/-	TY \$	% +/-	TY \$	TY %	LY %	TY \$	TY \$	TY %	LY %	TY \$	TY \$	TY %	LY %
Sub 1	\$1,779,639	-28.9	81,180	-33.5	\$2,579,661	145	135	5,559,284	\$682,842	38.4	39.9	\$15,000	\$557,129	31.3	36
Sub 2	\$1,334,895	-1.4	86,622	8.8	\$1,846,164	138	144	2,634,390	\$633,709	47.5	43.4	\$113,000	\$594,891	44.6	38
Total	\$3,114,534		167,802		\$4,425,825			8,193,674	\$1,316,551	42.27		\$128,000	\$1,152,020	37.0	

MARGIN RECONCILIATION	Q3
COST PURCHASES	
RETAIL PURCHASES	
IMU%	
CMU%	
SALES \$	
TOTAL MARKDOWN \$	
TOTAL MARKDOWN %	
COST CONCESSIONS	
ACT GROSS PROFIT \$	
ACT GROSS PROFIT %	
PLAN GROSS PROFIT %	42.0%
PLAN GROSS PROFIT \$	
\$ NEEDED	

BUYER/PLANNER CALCULATIONS	
COGS	
GAFS COST	
EOH COST	\$566,454
EOH RET	\$2,041,120
BOH\$ COST	\$413,830
REC COST (PURCHASES)	\$2,231,720
GAFS RETAIL	\$9,698,401
BOH\$ RETAIL	\$1,504,727
REC RETAIL (PURCHASES)	\$8,193,674
CMU MU%	72.7%
MRCH CHR\$	\$139,418
MRCH CHR%	4.48%

Scorecard
Buyer/Planner Calculations
COGS Calculation

COST OF GOODS SOLD FORMULA
GP\$ = Sales\$ - COGS
GAFS @ Cost = BOH @ Cost + Rec @ Cost
COGS = GAFS @ Cost - EOH @ Cost + Merch charge \$ - Cost Conc \$

ONE PAGE PITCH-EXAMPLE

The one page pitch, or what we call the “placemat” provides a simple and effective way to communicate your product, license or merchandise ideas. It gives you the ability to merge the creative with the financial aspects of your program on one sheet of paper. The key is to think about what issues the audience considers important when making decisions about what you have to offer. If pitching a new product line, you may want to include the categories, pricing strategy, assortment plan by store group, promotional strategy, lifestyle branding and competitive environment. The goal is to find the relevant issues and make sure they are represented in the grid. Choose a lifestyle image or logo that visually conveys your merchandising message. Print on 11 x 17 paper (size of a placemat). Your audience will appreciate the form factor and you can talk easily about your ideas with one easy reference point. Use the blank example on the following page to create your own “placemat”.

<p style="text-align: center;">BRAND POSITIONING</p> <p>ABC will provide Tween fashion collections to the Target Guest.</p> <p>The combination of design, driven by Contemporary fashion, and the power of AD Co Advertising and imagery enables ABC to fill a void in the mid-tier market.</p> <p>The creative factors behind ABC have enabled it to consistently maintain a high level of fashion credibility in the market. This same strategy will be employed for ABC.</p>	<h1 style="margin: 0;">ABC MFG</h1> <p>Driven by fashion and Paul Marciano Advertising, ABC offers a completely new shopping experience for the Target Guest who is tuned into fashion-right merchandise.</p> <p>ABC embraces hip, fashion savvy tweens who are always looking for the latest looks. A powerful combination of great fit and the latest fashion style gives ABC instant appeal.</p>	<p style="text-align: center;">MERCHANDISE PLANNING</p> <p>The ABC assortment includes 4 distinct planning segments that enable the sales floor to consistently maintain the brand feel and keep fresh fashion coming. They include:</p> <p>CORE – Jeans & Jacket in multiple washes/finishes with emphasis on fit.</p> <p>INFUSION- Fashion-right tops and bottoms</p> <p>RELATED SEPS- Theme-Driven merchandise that fits a specific fashion mood.</p> <p>IMMEDIATES- Items driven by current fashion trends.</p>																																																																																																															
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ONE PAGE PITCH-WORKSHEET

<p>BRAND POSITIONING</p>	<p>PRICING STRATEGY</p>	<p>MERCHANDISE PLANNING</p>
<p>COMPETITIVE LANDSCAPE</p>	<p>LOGO</p>	<p>PLANNING SEGMENTS</p>
<p>RETAIL SALES FORECAST</p>	<p>RETAIL ANALYSIS</p>	<p>ASSORTMENT BY STORE</p>

COMPETITIVE SHOPPING

Competitive shopping provides many benefits and is a necessary part of your retail analytics discipline. It can help you ensure pricing is realistic, catch trends and find holes in an assortment that could present a new opportunity to fill. We generally recommend shopping 3 retailers within your category and count the brands, styles, colors, sizes, etc. Try to get a sense of how much of an investment the retailer has made in each brand/category. By counting racks and fixtures and their capacity you can estimate roughly how many units are owned. Multiply that by the ticketed retail and you have dollar investment. Then apply a few turnover models coupled with promotions and you can estimate sales revenue. This can help you determine how big an opportunity (or liability) might be. Using smartphones you can discreetly take pictures of a department and key merchandise statements so you can study them in more detail later. We also like to estimate the amount of floor space devoted to a category by either counting floor or ceiling tiles. Don't forget to shop the clearance racks- they are an example of items that may not have sold well or where inventory was not optimal. By competitive shopping you can get a better grasp of your business and provide your retail partners with valuable information. The following are some examples of business overviews gleaned from competitive shopping exercises.

Brand	% of Space	Pricing Tier
Brand 1	10%	Good
Brand 2	15%	Best
Brand 3	15%	Best
Brand 4	8%	Better
Brand 5	3%	Better
Brand 6	30%	Varies
Brand 7	5%	Better
Brand 8	5%	Better
Brand 9	9%	Best

Creating a chart like this helps define the price point range for different brands by category:

	Dresses	Dresses	Tops	Tops	Jackets	Jackets	Jeans	Jeans	Rompers	Rompers	Footwear	Footwear
	Low PP	High PP	Low PP	High PP	Low PP	High PP	Low PP	High PP	Low PP	High PP	Low PP	High PP
Brand 1	\$30.99	\$46.99	\$16.99	\$36.99	\$51.99	\$51.99	\$19.99	\$36.99	\$35.99	\$47.99	\$24.50	\$79.00
Brand 2	\$88.99	\$128.00	\$38.99	\$66.99	\$49.99	\$178.00	\$69.99	\$109.99	\$85.99	\$85.99	\$35.00	\$110.00
Brand 3	\$79.00	\$198.00	\$28.99	\$79.00	\$61.99	\$119.99	\$39.99	\$59.00	\$89.00	\$89.00	\$49.00	\$98.00
Brand 4			\$26.99	\$26.99	\$58.00	\$58.00	\$29.99	\$39.99				
Brand 5	\$19.99	\$38.00	\$15.99	\$28.00	\$24.99	\$39.99			\$24.99	\$38.00	\$24.00	\$59.00
Brand 6	\$32.99	\$47.99	\$29.99	\$33.99	\$32.99	\$40.99			\$43.99	\$43.99	\$34.00	\$59.00
Brand 7	\$40.99	\$69.99	\$19.99	\$37.99	\$37.99	\$45.99			\$44.99	\$44.99	\$29.00	\$80.00

This chart shows the number of styles on the floor for each volume group. Adding store count enables you to do some quick math and figure out how big of an investment a retailer has in a category.

	Store Count >	12	200	300	150
	Volume Grade >	A+	A	B	C
Bedding Ensembles		8	5	4	2
Sheets		5	3	2	1
Dec Pillows		6	4	3	2
Throws		3	2	2	
Down		2	1		
Mattress Pads		3	2	1	
Bath Towels		4	3	2	1
Bath Accessories		3	2	1	1
Frames, gifts		5	4	2	
Casual Dinnerware		2	2	1	

COMPETITIVE SHOPPING

Each year, ERS conducts a detailed competitive shopping analysis for a specific category. Our mission is to determine if any “white space” exists in that category. “White space” represents a possible opportunity in the market. Through research and analysis, we uncovered information about current and emerging trends in Juniors’ denim, and were able to estimate the investment made into the category by each retailer. This section will describe how to conduct your own competitive shopping research and analysis, using our analysis as a real-world example.

The first step in competitive shopping is identifying the category of interest. Next is choosing a set of similar retailers within that category to explore – we generally recommend at least three. We chose two similar department stores (Macy’s and JC Penney), and one specialty store (The Gap). We conducted our research in stores located near each other (all three were located on or near Herald Square in Manhattan). It is recommended to shop multiple stores within a chain in different areas and with different store sizes to get a more accurate data set.

The next step is to collect data. While in the store, your goal is to observe what the retailer is selling, how they’re selling it, how customers are responding to it, and the similarities and differences between retailers. This data can then be used to infer trends in the market. At each retailer, you should look for common attributes – brand, style, color, size, and location in the store. You should also pinpoint attributes that are specific to your chosen category of interest. For our example, some of the most significant attributes we took note of are “rise” (high, mid, or low) and “fit” (skinny, straight, relaxed, etc.) These style properties are significant in describing what popular denim looked like, but wouldn’t be relevant in other categories, like bed sheets.

The use of smartphones allows you to discreetly take pictures of a department and key merchandise signage so that you can study them in more detail later. Our strategy was to capture wide pictures of the floor and how it was organized, and later zoom in on different displays. We recorded the display type (rack, table, wall, etc.) and its location on the floor (front, side, center, back); we then took pictures of each SKU on the display, making sure that tags were face-up and visible in the pictures. Tags vary among items, but typically give valuable information including brand, style/vendor number, item name, and of course, size and price. Some tags contained item descriptions, which helped in classifying items based on “rise” and “fit”. Other times, we searched for specific items on the retailer’s website later to gather additional information relating to the item’s description. We identified the attributes we would be looking for ahead of time so that we could efficiently collect large amounts of data as quickly as possible.

To determine the investment each retailer has made in the category, and specific brands, we estimate the square footage of the category floor by simply counting floor or ceiling tiles, or counting the footsteps around. You can further count racks and other display fixtures, and multiply their capacity by the ticketed retail to estimate the dollar investment. Taking into account promotions will give you an even better idea of what estimated sales revenue is. Further analysis can be done by cross-referencing other industry research sources as well as retailer’s annual sales reports. Factors such as store size, location, traffic, rent and sales volume are all important to consider with your analysis.

The way you choose to organize your raw data is crucial in interpretation. We recorded our findings in a spreadsheet: each retailer had its own worksheet of the raw inventory data we collected, organized by the following attributes: brand, collection (if applicable), style number, item name, style (type, rise, fit, design, color), floor count, sizes, price (MSRP, OTD), and display (type, number of shelves, and location in store). We then analyzed our data across all three retailers by brand, by price, by style, by color, square footage, and dollar ownership. We manipulated our data using basic functions such as quartiles, graphs, and charts. The following pictures are screenshots from our Juniors’ denim analysis:

COMPETITIVE SHOPPING

Brand	Collection	Style #	Name	Type	Rise	Fit	Design	Style	Color	Floor Count	Sizes	Price		Display		
												MSRP	OTD	Type	Shelve	Location
Arlington Fest		6MD97AAB	Adabelle Wash	short	mid-rise	straight	embroidered flower, faded, whiskered		dark blue w/ color en	27	0-13	\$49.50	\$49.50	rack	2	front, back
		6MD90PRR	Primrose Wash	overall short	n/a	regular	embroidered flower		med blue w/ color en	11	7-15	\$79.50	\$79.50	face rac	1	back
		5FD23ACC	Acacia Wash	long pant	mid-rise	skinny	gold stitch		dark blue	4	3-12	\$69.50	\$69.50	rack	1	back
Core		W31243CBC	Chambray Combo	dress	above kn	loose	spaghetti straps, lined bodice, scalloped hem, molded cups		light blue w/ white embroidery	14	0-15	\$69.50	\$69.50	face rac	1	mix floor, front
		W312430LTW	Light Wash	dress	above kn	loose	embroidered skirt, adjustable spaghetti straps, lined bodice, scalloped hem,		light blue w/ white embroidery	8	3-11	\$69.50	\$69.50	face rac	1	mix floor, front
		5BD12GSTAR	Taryn Wash	long pant	mid-rise	skinny	faded, lightly ripped		med blue	11	1-13, S/R	\$69.50	\$24.99	rack	1	back
American Rag		5FD26AOW	One White	bermuda	mid-rise	slim	cuffed		white	42	0-15	\$49.50	\$24.99	table	1	back
		5FD26BWS	Woodrose	bermuda	mid-rise	slim	cuffed		pink	13	0-15	\$49.50	\$24.99	table	1	back
		5FD26SMI	Sami	bermuda	mid-rise	slim	cuffed		med blue	10	0-15	\$49.50	\$24.99	table	1	back
		5HN91WS	Woodsmoke	crop	low-rise	crop	cuffed		brown	1	7	\$59.50	\$24.99	table	1	back
		5MD26ALR	Alura Wash	bermuda	mid-rise	slim	cuffed		dark blue	12	0-15	\$49.50	\$49.50	table	1	back
		5MD90SLTS	Lotus Wash	romper	above kn	regular	white stars all over		light blue	20	XXS-XXL	\$69.50	\$69.50	rack	1	front
		5SD50COR	Coredelia Wash	overalls	n/a	regular	chest pocket, cuffed, lightly ripped		med blue	3	9-11	\$79.50	\$79.50	rack	1	back
		6MD98RN	Rinse	short	mid-rise	straight	beited, visible seam		dark blue	38	0-15	\$44.50	\$44.50	table	2	front, back
		6SD33HOP	Hope Wash	long pant	low-rise	bootcut	faded		med blue	13	3-9	\$59.50	\$24.99	rack	1	back
		6TN220W	One White	short	low-rise	regular	cuffed, beited		white	28	0-15	\$44.50	\$44.50	rack	2	front, back, cent
		6TN22CBK	Classic Black	short	low-rise	regular	cuffed, beited		black	21	0-15	\$44.50	\$44.50	table	2	back, center
		6TN22DSN	Desert Sand	short	low-rise	regular	cuffed, beited		pink	20	0-15	\$44.50	\$44.50	table	2	back, center
		6TN22GPL	Grape leaf	short	low-rise	regular	cuffed, beited		olive green	20	0-15	\$44.50	\$44.50	table	2	back, center
		6TN22WRS	Woodrose	short	low-rise	regular	cuffed, beited		pale mauve	20	0-15	\$44.50	\$44.50	table	2	back, center
		6TN700W	One White	crop	low-rise	crop	cuffed		white	15	3-15	\$59.50	\$24.99	table	1	center
		6TN70CBK	Classic Black	crop	low-rise	crop	cuffed		black	45	0-13	\$59.50	\$24.99	table	1	center
		5SD20AOW	One White	vest	n/a	fitted	frayed, sleeveless		white	20	0-15	\$44.50	\$44.50	face rac	1	front

COMPETITIVE SHOPPING

By Brand:

Private Label Brand							
Store	Brand Name	# SKUs	% Mix	Store	Brand Name	# SKUs	% Mix
Macy's	American Rag	705	15.8%	JCPenney	Almost Famous	54	2.6%
	Celebrity Pink	495	11.1%		Ariya	71	3.4%
	Dollhouse	56	1.3%		Arizona	933	44.1%
	Indigo Rain	33	0.7%		Blue Spice	164	7.8%
	Jessica Simpson	234	5.3%		Decree	30	1.4%
	Levi's	2,753	61.8%		Levi's	410	19.4%
	Material Girl	10	0.2%		Rewind	24	1.1%
	O'Neill	10	0.2%		Sapphire Ink	18	0.9%
	Roxy	34	0.8%		Soundgirl	66	3.1%
	Tinseltown	86	1.9%		Union Bay	47	2.2%
	Vanilla Star	15	0.3%		Vanilla Star	64	3.0%
Vintage Reunion	21	0.5%	Wallflower	59	2.8%		
Total SKUs		4,452		Total SKUs		2,114	

By Price:

Brands	Macy's			Brands	JCPenney		
	Lowest Price	Highest Price	Average Price		Lowest Price	Highest Price	Average Price
American Rag	\$19.73	\$79.50	\$46.25	Almost Famous	\$21.60	\$39.00	\$32.40
Celebrity Pink	\$23.99	\$49.00	\$29.94	Ariya	\$19.99	\$27.99	\$21.32
Dollhouse	\$16.99	\$29.99	\$25.12	Arizona	\$14.99	\$36.00	\$20.74
Indigo Rain	\$16.99	\$29.99	\$20.56	Blue Spice	\$19.99	\$21.99	\$20.30
Jessica Simpson	\$44.00	\$59.50	\$53.85	Decree	\$19.99	\$19.99	\$19.99
Levi's	\$19.99	\$54.99	\$37.63	Levi's	\$25.99	\$59.50	\$36.17
Material Girl	\$33.00	\$44.50	\$38.75	Rewind	\$29.99	\$29.99	\$29.99
O'Neill	\$44.00	\$48.00	\$46.00	Sapphire Ink	\$17.99	\$44.00	\$28.99
Roxy	\$29.70	\$54.50	\$47.05	Soundgirl	\$17.99	\$44.00	\$23.65
Tinseltown	\$19.99	\$39.00	\$26.33	Union Bay	\$24.99	\$24.99	\$24.99
Vanilla Star	\$19.99	\$19.99	\$19.99	Vanilla Star	\$14.99	\$36.00	\$23.94
Vintage Reunion	\$19.99	\$19.99	\$19.99	Wallflower	\$17.99	\$29.99	\$22.99
				YMI	\$19.99	\$36.00	\$27.66

By Style:

Style Assortment (all retailers)

Pant/Crop/Capri															
	Type	# SKUs	%	Rise	# SKUs	%	Fit	# SKUs	%	Design	# SKUs	%	Color	# SKUs	%
	Crop	15	12.30%	Mid-Rise	113	92.62%	Skinny	86	70.49%	Ripped	10	10.99%	Med blue	25	20.49%
	Total	122		High-Rise	5	4.10%	Crop	15	12.30%	Classic	36	39.56%	Light blue	24	19.67%
				Total	122		Regular	6	4.92%	Faded	22	24.18%	Other	39	31.97%
							Total	122		Embroidered/embellished	0	0.00%	Total	122	
										Total	91				
JCPenney	Long Pant	60	75.00%	Low-Rise	15	18.75%	Bootcut	10	12.50%	Visible Stitching	9	11.69%	Dark blue	25	31.25%
	Crop	18	22.50%	Mid-Rise	55	68.75%	Skinny	39	48.75%	Ripped	9	11.69%	Med blue	30	37.50%
	Capri	2	2.50%	High-Rise	10	12.50%	Curvy	1	1.25%	Classic	26	33.77%	Light blue	17	21.25%
	Total	80		Total	80		Regular	4	5.00%	Faded	33	42.86%	Other	8	10.00%
							Crop	20	25.00%	Embroidered/embellished	0	0.00%	Total	80	
							Jeggings	6	7.50%	Total	77				
							Total	80							
The Gap	Long Pant	29	70.73%	Low-Rise	0	0.00%	Bootcut	5	12.20%	Visible Stitching	1	2.63%	Dark blue	10	24.39%
	Crop	12	29.27%	Mid-Rise	41	100.00%	Skinny	19	46.34%	Ripped	4	10.53%	Med blue	15	36.59%
	Total	41		High-Rise	0	0.00%	Regular	5	12.20%	Classic	23	60.53%	Light blue	9	21.95%
				Total	41		Cropped	12	29.27%	Faded	7	18.42%	Other	7	17.07%
							Total	41		Embroidered	3	7.89%	Total	41	
										Total	38				

COMPETITIVE SHOPPING

By Color:

Color (all retailers)								
Macy's			JCP Fabrics			The Gap		
Fabrics	#SKUs	%	Fabrics	#SKUs	%	Fabrics	#SKUs	%
Army Green	97	2.15%	Army Green	21	1.00%	Army Green	0	0.00%
Black	365	8.09%	Black	110	5.24%	Black	0	0.00%
Blue	4	0.09%	Blue	12	0.57%	Blue	0	0.00%
Brown	24	0.53%	Brown	0	0.00%	Brown	0	0.00%
Burgundy	0	0.00%	Burgundy	23	1.10%	Burgundy	0	0.00%
Coral	6	0.13%	Coral	0	0.00%	Coral	0	0.00%
Dark Blue	1266	28.06%	Dark Blue	687	32.71%	Dark Blue	319	24.63%
Grey	85	1.88%	Grey	18	0.86%	Grey	0	0.00%
Khaki	55	1.22%	Khaki	29	1.38%	Khaki	0	0.00%
Light Blue	1055	23.38%	Light Blue	406	19.33%	Light Blue	260	20.08%
Medium Blue	853	18.91%	Medium Blue	692	32.95%	Medium Blue	439	33.90%
Peach/Salmon	43	0.95%	Peach	0	0.00%	Peach	0	0.00%
Pink	33	0.73%	Pink	0	0.00%	Pink	0	0.00%
Purple	114	2.53%	Purple	0	0.00%	Purple	0	0.00%
Red	104	2.30%	Red	0	0.00%	Red	0	0.00%
White	396	8.78%	White	102	4.86%	White	277	21.39%
Yellow	12	0.27%	Yellow	0	0.00%	Yellow	0	0.00%
Total	4512		Total	2100		Total	1295	

By Square Footage:

Store	Floor Space	Sq. Ft (denim)	% Mix	Store	Floor Space	Sq. Ft (denim)	% Mix
Macy's	American Rag	67	2.3%	JCP	Levi	165	9.2%
	Celebrity Pink	144	4.9%		aisle	224	12.4%
	Jessica Simpson	48	1.6%		denim floor	800	44.4%
	Levi's	576	19.7%		mixed floor	4	0.2%
	Material Girl	2	0.1%		Denim Total	1,193	66.3%
	Roxy/O'Neill	13	0.4%		Jr. Floor Total	1,800	
	denim floor	244	8.4%				
	Denim Total	1,094	37.4%	Store	Floor Space	Sq. Ft (denim)	% Mix
Jr. Floor Total	2,922		The Gap	denim floor	525	50.0%	
				mixed floor	21	2.0%	
				Denim Total	546	52.0%	
				Jr. Floor Total	1,050		

By Dollar Investment:

Macy's			JCPenney		
Brand	Dollars	%	Brand	Dollars	%
American Rag	\$ 17,010.40	19.4%	Almost Fa	\$ 865.48	3.2%
Celebrity Pink	\$ 7,385.70	8.4%	Ariya	\$ 733.65	2.7%
Dollhouse	\$ 735.72	0.8%	Arizona	\$ 9,675.86	35.6%
Indigo Rain	\$ 324.84	0.4%	Blue Spice	\$ 1,669.18	6.1%
Jessica Simpson	\$ 6,646.50	7.6%	Decree	\$ 299.85	1.1%
Levi's	\$ 52,728.74	60.0%	Levi's	\$ 7,990.50	29.4%
Material Girl	\$ 193.75	0.2%	Rewind	\$ 359.88	1.3%
O'Neill	\$ 232.00	0.3%	Sapphire	\$ 263.45	1.0%
Roxy	\$ 847.00	1.0%	Soundgirl	\$ 755.78	2.8%
Tinseltown	\$ 1,372.84	1.6%	Union Bay	\$ 587.27	2.2%
Vanilla Star	\$ 149.93	0.2%	Vanilla Sta	\$ 759.28	2.8%
Vintage Reunion	\$ 209.90	0.2%	Wallflower	\$ 684.79	2.5%
Total	\$87,837.29		YMI	\$ 2,498.32	9.2%
			Total	\$27,143.27	

COMPETITIVE SHOPPING TEMPLATE

To get started, here is a simplistic template you can use as a guide for competitive shopping:

Retailer	Factors	Item	Item	Item	Comments
Retailer 1	Brands				
	Styles				
	Price Points				
	Colors				
	Sizes				
	% Mix				
	# SKUs				
Retailer 2	Brands				
	Styles				
	Price Points				
	Colors				
	Sizes				
	% Mix				
	# SKUs				
Retailer 3	Brands				
	Styles				
	Price Points				
	Colors				
	Sizes				
	% Mix				
	# SKUs				

ADDITIONAL RETAIL FORMULAS AND TERMS

Name	Description	Formula	Example
Age (Weeks Active)	The amount of weeks an item is on the selling floor. (Weeks Active implies the quantity of weeks an item has been selling, or available for selling, starting from the first week it sells until it is sold out).	n/a	n/a
All Comp Store Sales	A comparison of stores that have been open for more than one year (new stores less than a year old are not included in the comparison).	n/a	n/a
Asset Efficiency Measures	These formulas determine a company's efficiency in generating sales and profit. There can be large volume with no profitability, or little volume with great profitability, et cetera.	Turns = Ann Retail Sls / Avg. Retail Inv Ann Retail Sls = Avg. Retail Inv * Turns Avg. Retail Inv = Ann Sls / Turns Turns = 52 / W.O.H. W.O.H. = 52 / Turns R.O.I.I. = Ann GP\$ / Avg. Cost Inv Ann GP\$ = Avg. Cost Inv * R.O.I.I. Avg. Cost Inv = Ann GP\$ / R.O.I.I. R.O.I.I. = (MM% / CC%) * Turns MM% = (R.O.I.I. / Turns) / (1 + (R.O.I.I. / Turns)) Turns = R.O.I.I. / (MM% / CC%)	
Average Cost (AC), or Avg. Cost	An average cost can be determined when the Retail and MU% are known.	AC when Retail and MU% are known: $AC = R \times (100\% - MU\%)$	$AC = \$12,500 \times (100\% - 52\%)$ $AC = \$12,500 \times 48\%$ $AC = \$6,000$
Average Lead Time (calendar days)	The number of calendar days between the time the order is placed and received.		
Average Retail (AR)	An average retail can be determined when the Cost and MU% are known.	AR when Cost and MU% are known: $AR = Cost / (100\% - MU\%)$	$AR = \$2,383.75 / (100\% - 49\%)$ $AR = \$2,383.75 / 51\%$ $AR = \$4,674.02$
Average Retail Stock (ARS)	See Average Stock. The term "Retail" is the total retail dollar amount for which the product is owned (hard marked).	$ARS = (BOM + EOM) / 2$ or $ARS = (BOM + EOM + EOM) / 3$	May BOM \$10,000 May EOM \$9,400 June EOM \$8,200 sum is $\$27,600 / 3 = \$9,200$
Average Stock (AS) or Average Inventory or Average On-Hand (Avg. OH)	The quantity obtained by adding the beginning inventory to the ending inventory and dividing that sum by the number of its parts. Formula can be applied to units and dollars.	$AS = (BOM + EOM) / 2$ or $AS = (BOM + EOM + EOM) / 3$	May BOM 250 units May EOM 759 units June EOM 538 sum is $1547 / 3 = 516$ units (rounded up)
Average Unit Retail (AUR)	Total dollars (gross or net) for a specified period divided by the total units (gross or net) for the same period (always expressed in dollars).	$AUR = Dollars / Units$	$AUR = \$4564.63 / 101 = \45.19
Basic Stock Method	Deduct planned average monthly sales by the planned average inventory (the total planned sales divided by desired turn). The result is the minimum stock needed at the beginning of each month.	Planned Avg. Inventory - Planned Avg. Monthly Sales = Basic Stock	$(\$540,000 / 2) = \$270,000$ - \$90,000 = \$180,000
Billed Cost	The vendor's price to the retailer. This is different from Cost of Goods Sold.	n/a	n/a
BOM	Beginning of month.	n/a	n/a
BOM stock	The inventory at the beginning of the month. This can be expressed in dollars or units.	n/a	n/a

Name	Description	Formula	Example
Chargeback	The quantity charged for incorrectly shipped items or damaged items as defined in written agreement between the vendor and the retailer.	n/a	n/a
Closing Inventory Or Ending Inventory	The amount of inventory remaining at the end of the fiscal year. Can be expressed in units, cost dollars and retail dollars.	n/a	n/a
Closing Physical Stock	A physical count of remaining merchandise, expressed in retail dollars. Most retailers do a physical count twice a year.	n/a	n/a
Complement	A percentage deducted from 100.	Compliment = (100% – 65%) = 35%, or (1 - .65) = .35	n/a
Cost	The price the retailer pays for merchandise.	n/a	n/a
Cost of Goods Sold (COGS) and Total COGS	The price of the merchandise. The Total COGS is the total amount the retailer pays for the merchandise plus or minus any additional fees to make the goods sellable.	n/a	n/a
Cost On Hand	The cost value of the merchandise on hand.	n/a	n/a
Cost On Order	The cost value of merchandise on order.		
Cumulative Markup	The markup at the beginning of a period plus the markup for all receipts received during the period.	n/a	n/a
Customer Allowances	A reduction in price that is given to the customer after the purchase.	n/a	n/a
Customer Returns (the retailer's customer)	Merchandise returned to the retailer by the customer in exchange for store credit or cash.	n/a	n/a
Department	A category used to group specific merchandise.	n/a	n/a
Dollar Merchandise Plan	This is a document projecting sales, inventory, markdowns, markups, and receipts for a given period	n/a	n/a
Door	Door implies a physical location made of "bricks and mortar" for a given retailer (e.g., Kohl's will open 40-doors).	n/a	n/a
EOM	End of month	n/a	n/a
GMROI (gross margin return on investment)	Measures capital turnover.	GMROI = Gross Margin \$ / Average Inventory at Cost	n/a
Gross Margin (GM) and Gross Margin Percent (GM%)	The difference between Net Sales and Total-COGS is the gross margin. When forecasting, use the difference between the product of the markup percent compliment and the markdown percent.	GM = Net sales - Total cost of goods sold GM% = GM / Net Sales GM% = (MU% - ((1-MU%) * MD%))	GM = \$18.56 - \$10.51 = \$8.05 GM% = \$8.05 / \$18.56 = 0.43372844828 Expressed: 0.43372844828 * 100 = 43.4%
Gross Markdown	The initial price reduction	n/a	n/a
Gross Profit	<i>See Gross Margin</i>	n/a	n/a

Name	Description	Formula	Example
Gross Sales	The retail value prior to returns and discounts	n/a	n/a
Initial Markup or Initial Margin (IM) and IM%	The difference between the COGS and the original retail price is the initial markup. The initial markup percent is the initial markup divided by the original retail price and then multiplied by 100.	$IM = ((Original\ Retail - Cost) / Original\ Retail) * 100$	n/a
Inventory	Synonymous with the term "stock." (a.k.a. on hand). This is quantity of goods owned at the end of a specific period of time. This represents potential profit and is used as a gauge when comparing to actual profit.	n/a	n/a
Invoice Match Rate	The percent of invoices that match the orders.	n/a	n/a
LY	Last Year	n/a	n/a
Maintained Markup or Maintained Margin (MM) and Maintained Markup Percent (MM%)	The difference between the cost of goods and Net Sales (see below).	$MM\$ = Net\ Sales - Cost\ of\ Goods\ Sold$ $MM\% = MM\$ / Net\ Sales$ $MM\% = MU\% - MD\%Cost$ $MD\%Cost = MD\%Rtl * CC\%$ $CC\% = 1.00 - MU\%$	
Margin	See Gross Margin, Initial Markup or Maintained Markup.	n/a	n/a
Markdown MD\$, and MD%	The difference between the original retail and the new retail is the markdown price. Divided the markdown by the original retail and then multiply by 100 to get the markdown percent.	$MD\$ = Original\ Retail - New\ Retail$ $MD\% = (MD\$ / Original\ Retail) * 100$	Original Retail \$24.00, New Retail \$18.87 $MD\$ = \$24.00 - \$18.87 = \5.03 $MD\% = (\$5.03 / \$18.87) * 100 = 26.7\%$
Markup (MU) Markup % (MU%)	See Initial Markup and Initial Markup Percent	n/a	n/a
Merchandise Transfers	The transfer of merchandise from one department to another or the transfer of merchandise from one door to another.	n/a	n/a
Net	The amount, value, or price that remains after all the deductions have been applied.	n/a	n/a
Net Cost	Net Cost is the final cost of the merchandise after all discounts are applied.	n/a	n/a
Net Loss	A net loss happens when the gross margin is less the operating expenses.	n/a	n/a
Net Markdown	Net Markdown is the difference between the original retail price and net retail price.	n/a	n/a
Net Profit	There is a net profit when the gross margin is greater than the operating expenses.	n/a	n/a
Net Sales	Gross sales minus allowances and customer returns	$Net\ Sales = Gross\ Sales - Allowances - Returns$	
Number of Weeks of Supply	Determines inventory needs	$Weeks / Desired\ Turnover$	
LW	Last Week	n/a	n/a

Name	Description	Formula	Example
On Hand (OH)	Inventory. Stock. This can be expressed in units or dollars.	$OH = LW\ Stock - TW\ Net\ Sales + TW\ Shipments$	n/a
On Order	On Order refers to orders that have not been received.	n/a	n/a
Open-to-buy (OTB)	Open-to-buy determines the amount money available to purchase goods for specific period of time in the future.	$OTB = Planned\ Sales + Planned\ Markdowns + Planned\ EOM\ OH - Planned\ BOM\ OH$	n/a
Opening Book Inventory	The retail or cost value of owned merchandise at the beginning of the fiscal period.	n/a	n/a
Opening Inventory	The retail value of owned merchandise at the beginning of a given period.	n/a	n/a
Operating Expenses	Direct and Indirect expenses associated with running an organization.	n/a	n/a
Operating Income	Retailers sometimes refer to their net sales as operating income.	n/a	n/a
Out-the-Door (OTD)	Out-the-Door is an item's final retail price.	$Ticketed\ price - discount = OTD$	n/a
Order Fill Rate %	Percent of orders receipted vs. ordered	n/a	n/a
Physical Inventory	The retail dollar value of all goods physically present in a periodic stock count.	n/a	n/a
Planned Purchases	See Planned Receipts.	n/a	n/a
Planned Receipts	Merchandise the retailer plans to receive for given period of time.	n/a	n/a
POS	Point-of-sale	n/a	n/a
Profitability Measures	Formulas used to determine a company's health. A healthy company is a profitable company. (e.g. Initial Margin, Cost, Retail, Markdown%, Markdown \$, Markdown %, POS Sales, Maintained Margin)	$MU\% = (Retail - Cost) / Retail$ $Cost = Retail * (1.00 - MU\%)$ $Retail = Cost / (1.00 - MU\%)$ $MD\% = MD\$/ POS\ Sales$ $MD\$ = POS\ Sales * MD\%$ $POS = MD\$/ MD\%$ $MM\% = MU\% - MD\%Cost$ $MD\%Cost = MD\%Rtl * CC\%$ $CC\% = 1.00 - MU\%$ $MM\% = MU\% - (MD\% * (1.00 - MU\%))$ $MM\% = MU\% + (MD\% * MU\%) - MD\%$ $MU\% = (MM\% + MD\%) / (1.00 + MD\%)$ $MD\% = (MM\% - MU\%) / (MU\% - 1.00)$	
Reductions	Reductions are the sum of all markdowns, employee discounts, customer discounts, and shortages.	n/a	n/a
Retail	The price at which the retailer sell its merchandise.	n/a	n/a
Retail Reductions	The sum of markdowns, stock shortages and employee discounts.	n/a	n/a
ROI	Return on Investment. This is the annual gross profit divided by the average inventory at cost. Increase Maintained Margin, Turns or both to improve ROI.	$R.O.I.I. = Ann\ GP\$/ Avg.\ Cost\ Inv$ $R.O.I.I. = (MM\% / CC\%) * Turns$	
Sell Thru (ST), and ST%	The amount sold vs. the inventory.	$ST = Sales / (Sales + On\ Hand)$ $ST\% = ST * 100$	$ST = 5 / (5 + 100) = 0.04761904762$ $ST\% = 0.04761904762 * 100 = 4.8\%$

Name	Description	Formula	Example
Shortage	The difference between what's recorded and what's physically counted. (e.g. shrinkage can cause a shortage)	n/a	n/a
Shrinkage	Damaged or pilfered merchandise is shrinkage.	n/a	n/a
Sls	Sales	n/a	n/a
Stock	Inventory expressed in dollars.	See On Hand	
Stock-Sales Ratio	BOM Stock divided by Sales for the same month.	Stock to Sales = BOM Stock / Sales for the Month	
Store Weeks on Hand	The average number of weeks the store will last		
STD	Season-to-Date	n/a	n/a
Total Cost of Goods Sold	See Cost of Goods Sold	n/a	n/a
Transfers	See Merchandise Transfers	n/a	n/a
Turnover, or Turn	Net Sales divided by Average Inventory. This can be expressed in both dollars and units.	n/a	n/a
TW	This Week	n/a	n/a
TY	This Year	n/a	n/a
U	Unit or Units	n/a	n/a
Volume Measures	Formulas used to determine a company's size and growth rate. (e.g. Sales Increase %, LY Sales, TY Sales, Average Price, POS Sales, POS Qty)	$Sls\ Inc\% = (TY\ Sls - LY\ Sls) / LY\ Sls$ $LY\ Sls = TY\ Sls / (Sls\ Inc\% + 1.00)$ $TY\ Sls = LY\ Sls * (Sls\ Inc\% + 1.00)$ $Avg.\ Px = POS\ Sales / POS\ Qty$ $Sls = POS\ Qty * Avg.\ Px$ $Qty = POS\ Sales / Avg.\ Px$ n/a	
Weeks On Hand (W.O.H.)	This determines how many weeks of inventory that remain based on current selling trends.	$W.O.H. = \text{current inventory} / \text{avg. sls (for desired period)}$	n/a
WTD	Week-to-Date	n/a	n/a
YTD	Year-to-Date	n/a	n/a

Forecasting Sales and Inventory Exercise (Retailer's Open to Buy) Answer

Sales Curve			
FEB = 8%	MAY = 7%	AUG = 12%	NOV = 13%
MAR = 7%	JUNE = 9%	SEPT = 5%	DEC = 14%
APR = 6%	JULY = 10%	OCT = 5%	JAN = 4%

Item Potential before Adjustments	100,000
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Open to Buy	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	JAN
Calculated Beginning On Hand	33,200	29,200	23,800	24,300	34,700	34,050		
Actual Beginning On Hand	29,000	29,200	24,300	24,300	34,700	34,050		
Calculated Sales	9,000	10,000	12,000	5,000	5,000	13,000	14,000	4,000
- Sales (after adjustments)	9,000	10,400	13,800	5,000	5,000	14,300	15,400	4,350
+ On order	6,000	5,500	5,000	5,000	0	0		
Actual Ending On Hand	26,000	24,300	15,500	24,300	29,700	19,750		
Calculated BOH (Next Month)	29,200	23,800	24,300	34,700	34,050			
Buy Quantity	3,200	0	8,800	10,400	4,350			
Carry Over Quantity	0	500	0	0	0			

Margin Assistance Exercise Answer

MARGIN RECONCILIATION	Q3
COST PURCHASES	\$2,231,720
RETAIL PURCHASES	\$8,193,674
IMU%	72.8%
CMU%	
SALES \$	\$3,114,534
TOTAL MARKDOWN \$	\$4,425,825
TOTAL MARKDOWN %	142.0%
COST CONCESSIONS	\$128,000
ACT GROSS PROFIT \$	\$1,024,020
ACT GROSS PROFIT %	32.9%
PLAN GROSS PROFIT %	42.0%
PLAN GROSS PROFIT \$	\$1,308,104
\$ NEEDED	\$284,084

BUYER/PLANNER CALCULATIONS	
COGS	\$2,090,514
GAFS COST	\$2,645,550
EOH COST	\$566,454
EOH RET	\$2,041,120
BOH\$ COST	\$413,830
REC COST (PURCHASES)	\$2,231,720
GAFS RETAIL	\$9,698,401
BOH\$ RETAIL	\$1,504,727
REC RETAIL (PURCHASES)	\$8,193,674
CMU MU%	72.7%
MRCH CHRG \$	\$139,418
MRCH CHRG%	4.48%

GP\$ = Sales\$ - COGS
GAFS @ Cost = BOH @ Cost + Rec @ Cost
COGS = GAFS @ Cost - EOH @ Cost + Merch charge \$ - Cost Conc \$

Scorecard
Buyer/Planner Calculations
COGS Calculation

Creating an Item Plan Solution

The plan does not meet the margin goal of 42%. If the parameters are left as the buyer requested the plan yields a 39.9% gross profit. To meet the profit goal a variety of things could be changed- the cost could be lowered, ticketed price increased, promotions changed, etc. If the cost was changed to \$11.82 and all other factors stayed the same the plan would produce a 42% margin.

Units 25000
 Cost \$12.25
 Retail \$30.00
 Margin Goal: 42%

WK	Curve %	WK Units	% Off	AUR	\$\$ Sales	GP\$	GP%
1	0.01	250	0%	\$30.00	\$7,500	\$4,438	59.2%
2	0.01	250	0%	\$30.00	\$7,500	\$4,438	59.2%
3	0.015	375	0%	\$30.00	\$11,250	\$6,656	59.2%
4	0.03	750	0%	\$30.00	\$22,500	\$13,313	59.2%
5	0.04	1000	30%	\$21.00	\$21,000	\$8,750	41.7%
6	0.045	1125	30%	\$21.00	\$23,625	\$9,844	41.7%
7	0.04	1000	30%	\$21.00	\$21,000	\$8,750	41.7%
8	0.05	1250	30%	\$21.00	\$26,250	\$10,938	41.7%
9	0.05	1250	30%	\$21.00	\$26,250	\$10,938	41.7%
10	0.05	1250	30%	\$21.00	\$26,250	\$10,938	41.7%
11	0.055	1375	30%	\$21.00	\$28,875	\$12,031	41.7%
12	0.06	1500	30%	\$21.00	\$31,500	\$13,125	41.7%
13	0.055	1375	30%	\$21.00	\$28,875	\$12,031	41.7%
14	0.05	1250	30%	\$21.00	\$26,250	\$10,938	41.7%
15	0.04	1000	30%	\$21.00	\$21,000	\$8,750	41.7%
16	0.03	750	0%	\$30.00	\$22,500	\$13,313	59.2%
17	0.02	500	0%	\$30.00	\$15,000	\$8,875	59.2%
18	0.05	1250	40%	\$18.00	\$22,500	\$7,188	31.9%
19	0.05	1250	40%	\$18.00	\$22,500	\$7,188	31.9%
20	0.05	1250	40%	\$18.00	\$22,500	\$7,188	31.9%
21	0.04	1000	50%	\$15.00	\$15,000	\$2,750	18.3%
22	0.03	750	50%	\$15.00	\$11,250	\$2,063	18.3%
23	0.03	750	50%	\$15.00	\$11,250	\$2,063	18.3%
24	0.04	1000	50%	\$15.00	\$15,000	\$2,750	18.3%
25	0.03	750	50%	\$15.00	\$11,250	\$2,063	18.3%
26	0.03	750	50%	\$15.00	\$11,250	\$2,063	18.3%
Total		25000			\$509,625	\$203,375	39.9%

Margin Goal Profit \$:	\$214,043
Plan Profit \$:	\$203,375
Difference from Goal:	-\$10,668

RECOMMENDED READING FROM OUR BLOG

The following links provide additional insight and content from our blog. The topics discussed relate to the topics covered in the primer. The authors are various Enhanced Retail Solution members.

Measuring Inventory Opportunity and Liability

<https://enhancedretailsolutions.com/measuring-inventory-opportunity-and-liability/>

Retail Analytics Taking Action

<https://enhancedretailsolutions.com/retail-analytics-taking-action-from-pos-reporting/>

Price Elasticity and the Impact from Inflation

<https://enhancedretailsolutions.com/using-price-elasticity-models-to-understand-the-impact-from-inflation/>

Optimize Your POS Reports for Wholesale Business

<https://enhancedretailsolutions.com/3-smart-pos-reports-for-wholesalers/>

The Importance of Tracking Stock Outs

<https://enhancedretailsolutions.com/the-importance-of-tracking-stock-outs/>

The Comparison Game

<https://enhancedretailsolutions.com/the-comparison-game/>

The Buyer is Really A Curator

<https://enhancedretailsolutions.com/the-buyer-is-really-a-curator/>

The Importance of Competitive Shopping

<https://enhancedretailsolutions.com/the-importance-of-competitive-shopping-how-online-assortments-can-be-deceiving/>

The Benefits of Integrating Demographics with POS

<https://enhancedretailsolutions.com/the-benefits-of-integrating-demographics-with-pos/>

Finding the Sweet Spot for your Forecast

<https://enhancedretailsolutions.com/finding-the-sweet-spot-for-your-forecast/>

Harvesting POS Data- Here's What You Need to Know

<https://enhancedretailsolutions.com/considering-harvesting-pos-data-heres-what-you-need-to-know/>

The Key to Key Items

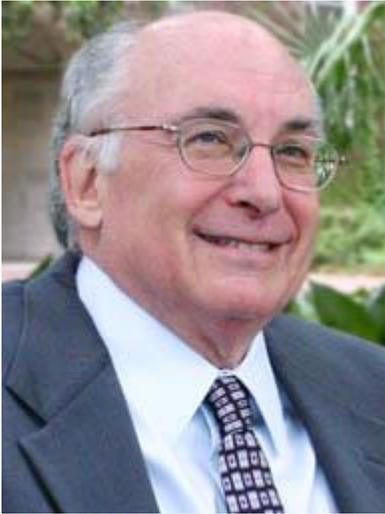
<https://enhancedretailsolutions.com/the-key-to-key-items/>

Improving Inventory Management for Distributors

<https://enhancedretailsolutions.com/improving-inventory-management-for-distributors/>

DEDICATION AND THANKS

This book is dedicated to the late Dr. Barton Weitz, my professor at the Warrington College of Business at the University of Florida who introduced me to the opportunities of a career in retailing. An inspirational figure, he founded the Miller



Center for Retail which continues to educate, nurture and inspire students to seek careers in retail. Dr. Weitz passed away in 2018 after a decade long battle with Parkinson's. I admired his courage, intellect and most of all his passion. If it was not for him, I simply would not be where I am today.

I would like to thank all my colleagues at Enhanced Retail Solutions who helped put this together especially David Matsil, Josh Coughlin, Paul Warren and Greg Bailey. Our fantastic UF interns over the last several years who contributed content or helped edit including Stephanie Ursitti, Natasha Pototski, Victoria Suarez, Cassidy McKenna, Luaren Meyer, Christian Postey, Julia Yanowitz, Lauren Cohen and Helen Qie.

Thanks!

Jim Lewis
Founder and CEO, Enhanced Retail Solutions LLC



The Team 2019: Josh Coughlin (CTO), Jim Lewis (CEO), David Matsil (President of Business Development), Paul Warren (Director of Consulting), Stefanie Blum (Director of Client Relations)



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WHO WE ARE

Enhanced Retail Solutions serves retailers, manufacturers, digitally native brands and licensors across a multitude of verticals including apparel, toys, home goods, electronics, consumer packaged goods- basically anything with a UPC on it!

We have a unique business model that mixes state of the art technology with hands-on consulting. From basic reporting to AI forecast modeling, all our solutions have the aim of improving your inventory productivity while increasing sales and profit. We serve companies large and small- from 1 item at 1 retailer to over 23,000,000 sku-store combinations.

Our services integrate and interpret POS, ERP, PLM and other 3rd party data sources to turn data flow into actionable information. Some of our solutions include:

- ▶ **Consulting-** Outsource your planning department to us or let us complement it, providing advice and detailed analytics, forecasting, category management, custom software development and more.
- ▶ **Retail Synthesis-** Cloud-based business intelligence platform provides an open, flexible reporting tool for virtually any industry. Interactive dashboards, grids, pivot tables, charts and Google Visualizations.
- ▶ **Retail Narrative-** A new paradigm in reporting uses AI & expert learning to ask all the right domain specific questions of your POS data, scores the answers to those questions, and presents the user with the top actionable items that could directly affect business right now.
- ▶ **Best Practices-** Sales and planning tool kit to analyze sales & inventory, review store execution, demographic and geographic analysis, opportunities and liabilities, turnover, store level replenishment, rank stores and more.
- ▶ **Allocation Improvement Manager-** Identifies and rectifies inventory opportunities that may exist at the SKU-Store level, thus reducing lost sales and profit. Designed with collaboration in mind integrating both vendor and retail inventory statistics.
- ▶ **Demand Planning/Forecasting-** Using a variety of user defined parameters and dynamic business rules, estimates future sales and calculates wholesale inventory needs by sku by month based on sales performance. Integrates forecast data into business intelligence platform for past, present and future statistics on one report.
- ▶ **Automated VMI and Door Level Replenishment-** Attain the ability and expertise to bring supplier-retailer collaboration to a new level.
- ▶ **Multi-Channel-** We offer a wide range of solutions and expertise for direct to consumer retailers. We provide deeper visibility to sales, orders and inventory across all channels and throughout the product pipeline. Integrating our platform with multiple data sources including Magento or Shopify enables better forecasting and inventory optimization. We also link social and ecommerce promotions from applicable API's to compare revenue against cost to determine marketing ROI.

At ERS we have over 100 years of buying, selling, branding and product development and have provided strategic consulting for retailers large and small including JC Penney, iRobot, Fast Retailing, Turning Point Brands, Weatherproof, UGG Home and Frye. Many other retailers, universities and even hedge funds have purchased this primer to train their staff.

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