



WHITEPAPER

# Out-of-Stocks: Debunking 7 Myths Around Store Availability



## Applying Science to Retailer Data

### EXECUTIVE SUMMARY

An executive for one of the world's leading consumer packaged goods (CPG) manufacturers once confided anonymously that his company disappoints 12 million customers each and every day because its products are not on the shelf when the customer intends to purchase them. This staggering figure illustrates the magnitude of the out-of-stock (OOS) issue in the retail and CPG industries.

According to the Grocery Manufacturers Association (GMA), the OOS rate averages just below 8% in the United States and has not significantly reduced in the past few years. Almost one out of every 10 items a shopper intends to purchase will be out of stock. Further, promotional OOS are evaluated to be twice that level.

However, most retailers and manufacturers claim that their OOS rate hovers at around 2%. Who is right? And, why the big discrepancy?

RSi has conducted more than 20 OOS studies for leading CPG manufacturers based on store audits and extensive data analysis. Bottom line: OOS events cost CPGs and retailers significant amounts of money. But the good news is, they are fixable.

In this white paper, we explore some of the insights gained through these studies – and topple seven of the fallacies surrounding OOS – in order to offer some effective ways to improve this major industry problem.



## **Myth #1: My products are in stock at retail stores over 98% of the time.**

### **Reality:**

Through discussions with more than 50 of the largest consumer goods companies, RSi has consistently heard that OOS levels are around 1.5% to 2%.

However, the retail OOS rate is probably one of the most confusing metrics in the industry. *A Comprehensive Guide to Retail Out-of-Stock Reduction in the Fast-Moving Consumer Goods Industry* by Thomas W. Gruen and Daniel Corsten, identifies no fewer than seven acceptable OOS metrics – from the Item OOS Event Rate to the OOS Customer Rate Impact – with each metric describing a different phenomenon.

The first stage of measurement is to agree upon a common definition for what will be measured. For example, a popular club store reports a 0% OOS rate, as its policy is to fill up every shelf location as it runs out – even if it is with a product that was not intended to be sold in that specific location. Is 0% an accurate measure of stock-outs at this retailer? If the consumers are not too particular in selecting a specific variant of a product type, and as this store is not expected to maintain a consistent assortment week over week, then this may be an accurate depiction. However, from a manufacturer's standpoint this definition can be problematic. If the manufacturer's product is the victim of such "slide-and-hide" practices, then sales – and ultimately consumers – may be lost.

The generally accepted industry standard states that an item is OOS when the retailer intends to have it for sale, but there is no physical presence of a salable unit on the shelf. While this metric probably reflects the most valid definition of an OOS event, it has historically required measurement via expensive physical audits. Most retailers have therefore resorted to a proxy; an item is OOS when the store inventory (the "on-hand") reaches zero.

This proxy is the crux of the discrepancy between the result of the GMA study (the real-life, audited OOS levels in retail stores at approximately 8%) and the generally reported levels of 1.5% to 2%.

As represented in Figure 1, two main issues can explain the difference:

1. Store operations remain suboptimal and frequently result in situations where product is in the store but not available to interested, potential consumers; products are often left in the back room, planogram compliance is low in most stores, products are hidden behind other (sometimes competing) products on the shelf or are being misplaced by customers.
2. The other issue is “phantom inventory” that is accounted for in the store system, but actually no longer in the store. Phantom inventory is often caused by casual events: A busy checkout line on a Saturday morning where a shopper has picked up a few flavors of the same yogurt, for instance. The cashier scans one of the items and multiplies it by the total number of products (to save some time.) The consumer’s total price will be right, but the inventory systems are thrown off. The product scanned will have hidden inventory (more items will be in the store than what the system believes) and the other variants will have phantom inventory (more in the system than actually remains in the store). Aside from mis-scans at checkout, a number of other issues may result in phantom inventory – theft, unreported damage, improperly accounted for returns, DC short-ships, mis-picks and labeling errors.

## Difference Between On-Hand and Reported OOS

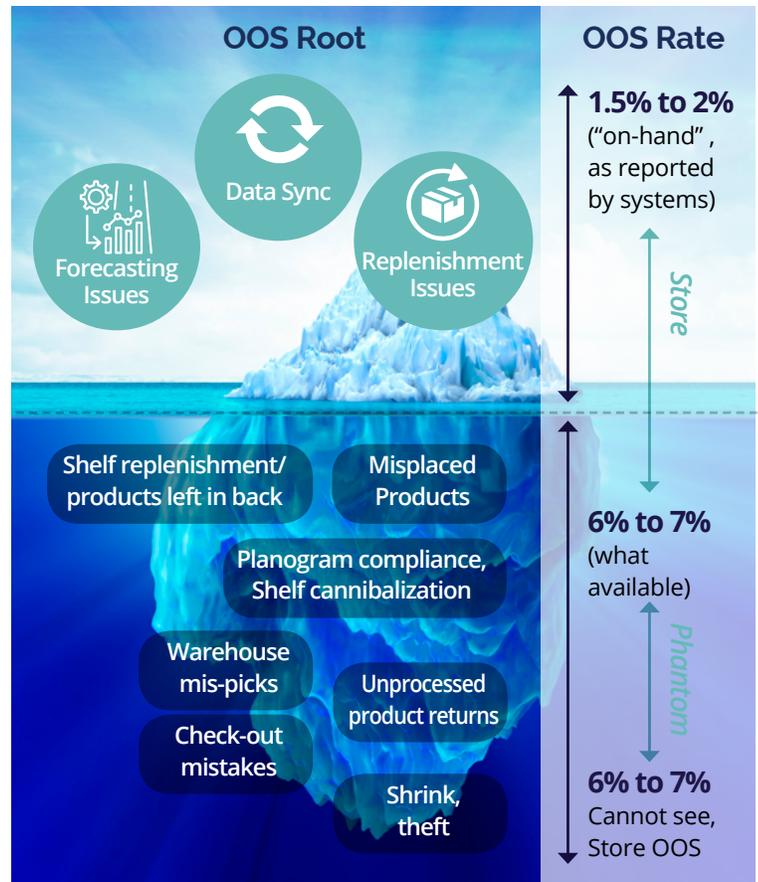


FIGURE 1

Despite what systems may report, OOS rates in the United States are not at 2% – even at the best-performing retailers. The average is much closer to 8% - 10%. However, since phantom inventory and shelf-only stock-outs typically go undetected, retailers and suppliers have focused their efforts on the much smaller 2% opportunity visible to them – replenishment to the store. With this undue focus on such a small fraction of the overall OOS situation, it’s no wonder that overall OOS rates have not changed over the past decade!

### What you can do:

- ✓ Although they can be related, trading partners should understand that on-shelf availability (OSA) does differ from an OOS, which typically does not consider a product void if it is in the store (i.e., could be damaged, could be in the back room, could be in the wrong shelf location, etc.).
- ✓ CPG companies and retailers can collaboratively develop the OSA definition to then establish a baseline measurement through standard OSA metrics, as well as set mutual goals across the enterprise.
- ✓ Boosting OSA improvements (while reducing OOS), through actionable alerts can generate mutual benefits for all trading partners involved through a collaborative infrastructure.



### Myth #2: Improving my forecast accuracy will reduce OOS.

#### Reality:

Forecast error currently contributes to just a small portion of the 1.5% to 2% OOS rate typically measured by retailers. While higher forecast error will certainly lead to greater OOS, it is unclear whether further improvements to forecast accuracy will result in significantly fewer OOS. We seem to have reached a collective point of diminishing returns, where a marginal increase in forecasting accuracy will no longer result in lower OOS levels.

Across 20 studies performed by RSi, supplier forecast error only contributed to less than one-quarter of a percent to lost sales as result of OOS – an insignificant root cause compared to the other OOS root causes defined and shown in Figures 2 and 3.

Of the OOS caused by forecast error, a large portion could be attributed to:

- Under-forecasted demand for new production introductions and promotions.
- Highly seasonal or event-driven demand.
- Direct Store Delivery (DSD) and direct-to-store supplied products.

While the business case for accurate forecasting is not to be challenged, it is most applicable to inventory optimization and order fill rate. Warehouse OOS may decrease. In a DSD environment, so may store OOS. However, whether this inventory makes it onto the shelf at the time when the consumer intends to purchase the product, remains completely unchanged as 85% of the root causes of OOS are yet to be addressed.

#### Definition of OOS Root Causes

Shelf-only OOS	Product in the store, but not on the shelf (inventory in the back)
Phantom inventory	Product not available in the store with perpetual inventory blocking replenishment
Shelf with Phantom	Combination of above issues
Replenishment settings	Entire store goes into OOS because sales exceeded the demand forecast plus safety stock during the replenishment lead time
Upstream supply chain issues	Warehouse out-of-stocks, no order placement and supplier-caused shortages

FIGURE 2

## OOS Root Causes

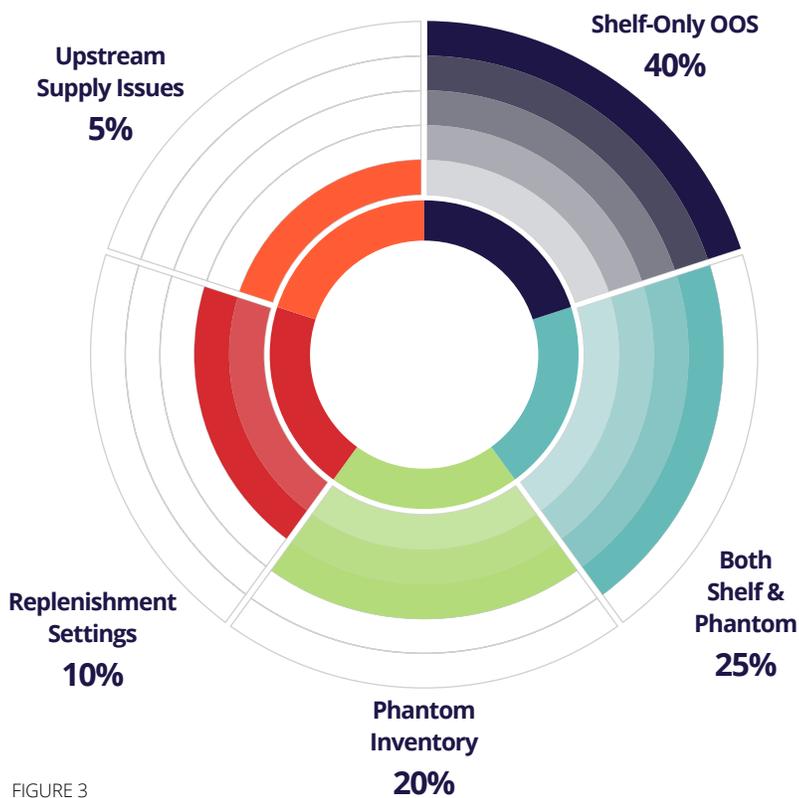


FIGURE 3

### What you can do:

- ✓ Leverage the true value of point-of-sale (POS) data and inventory data for a more accurate demand forecast to determine the optimal amount of store allocations, and to reduce shrink, reclaim and inventory (and ultimately lower OOS).
- ✓ Use alerts to manage the availability of new items at the store level during critical demand cycles to optimize the use of new product introduction investments (including monitoring flow of products from supplier, to DC, to store).
- ✓ Use store attributes to create groupings of like stores and identify the optimal assortment of items (through demographic data and planograms).

## Myth #3: Implementing a multi-echelon inventory optimization solution will reduce OOS.

### Reality:

There is a lot of confusion around the overall goal of inventory optimization. The process allows both retailers and suppliers to significantly reduce inventories while maintaining current levels of on-shelf availability (OSA). There is a tremendous business opportunity for those who properly leverage this capability. However, inventory optimization will not do much to improve OSA for the consumer.

Altogether, as shown in Figure 3, replenishment-setting errors are the root cause for 10% of all OOS events. According to RSi research, half of these replenishment-setting errors, and hence less than 5% of all lost sales due to OOS, can actually be attributed to ineffectual inventory policies.

There are situations where inventory optimization solutions may have a direct impact on OSA. For instance, for processes and policies governing the initial shipments and replenishment of promotions and new item introductions, inventory optimization tools appear to provide a tangible opportunity for OOS reduction. However, even in these situations, the inventory optimization and allocation part of the problem will still have a limited impact if store processes and information systems are not corrected.

## Myth #4: OOS don't last long enough to warrant a response.

### Reality:

Manufacturers and retailers typically share this opinion. Most OOS events last just one day, and manufacturers may think there is little they can do about it.

Per Figure 4, single-day episodes are the most common OOS events; and approximately 75% of OOS episodes last less than three days. Affecting replenishment or intervening in the store is costly and disruptive, as it would require a significant change in the supply chain.

However, this is only part of the problem. When considering the impact of OOS events on sales, what must also be taken into consideration is the number of OOS episodes multiplied by their average duration. This metric reveals a different story.

As represented in Figure 4, two-thirds of lost sales days are from OOS events that last more than six days and more than half of lost sales days come from the 2% of OOS episodes lasting more than 10 days. These long-lasting events should be addressed first, as they affect brand loyalty, encourage brand switching and cause dereferencing by retailers.

In comparison, the episodes lasting fewer than three days represent only about a quarter of lost sales. At this level, there is ample opportunity to intervene without impacting the overall supply chain and the merchandiser's store calling plan. Relevant information is required: Which products are really OOS, why, and what should be done about it?

### Distribution of OOS events by duration and impact on sales (OOS events x duration of the event)

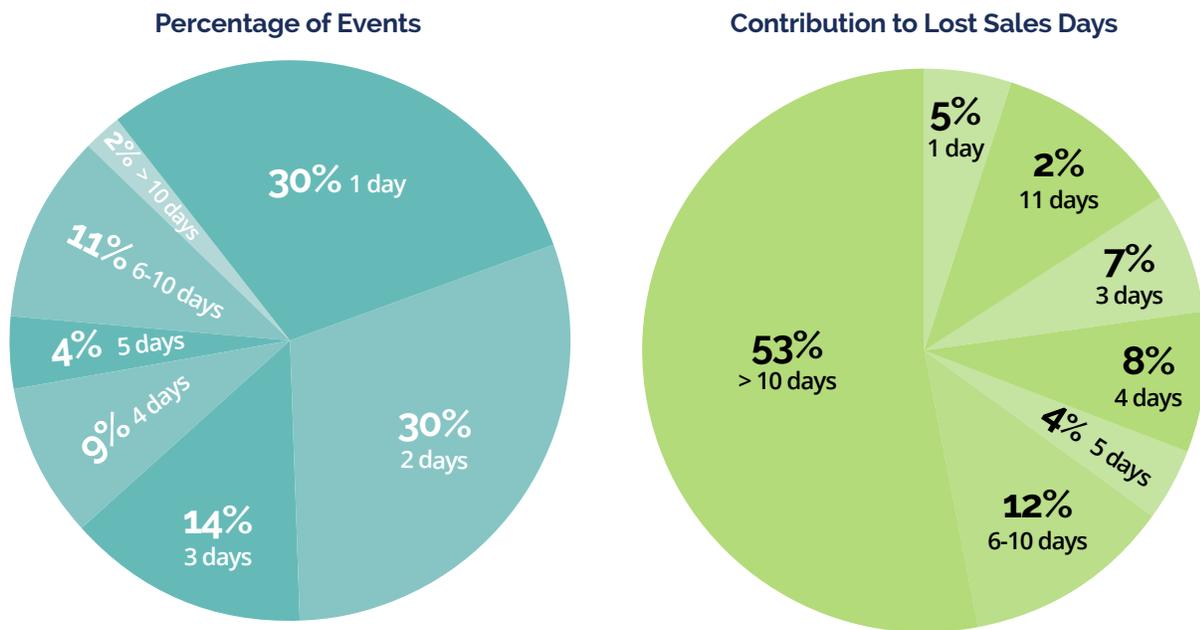


FIGURE 4

### What you can do:

- ✓ Leverage a solution that uses highly advanced statistical algorithms to identify and correct OOS. Over time these systems will become smarter through machine learning, resulting in a more accurate and automated process.
- ✓ Use OSA/OOS alerts to provide direction, and identify trends over time (that may require process changes). Use the feedback to correct problems and improve performance over time.

## Myth # 5: The faster a product sells, the more often it is OOS.

### Reality:

Take for instance, a classic Saturday night shopping experience. The shopper is looking for a popular product, a fast-moving grocery, or dry good item at his or her local store, and it is nowhere to be found. During the course of the day it sold out and the shelf will not be replenished for a few more hours. As this happens during almost every shopping trip, we associate it with the notion that faster moving items experience a higher OOS rate. It seems intuitive that the faster an item sells through its shelf quantity, the more frequently the shelf will go OOS.

In reality, however, this is not what happens. These fast-moving items, representing the bulk of the store sales, typically have lower stock-out rates. There are several reasons for this, including:

- Store associates are trained to focus on the highest volume items.
- Store systems and processes are designed around key items that should never go OOS.
- Shorter review and lead times are typically applied to high volume items.
- Faster sell-through results in more frequent replenishments to the store and to the shelf, so shelf conditions do not degrade significantly between stocking events.

By contrast, as represented in Figure 5, OOS are more prominent for items that are not considered high velocity. For these products the replenishment frequency is slower, which correlates to and often results in poorer store planogram compliance. The result: longer lasting OOS events that contribute more to lost sales and lost consumers, who switch brands after continuous disappointment at the shelf.

### OOS Rate by Product Velocity

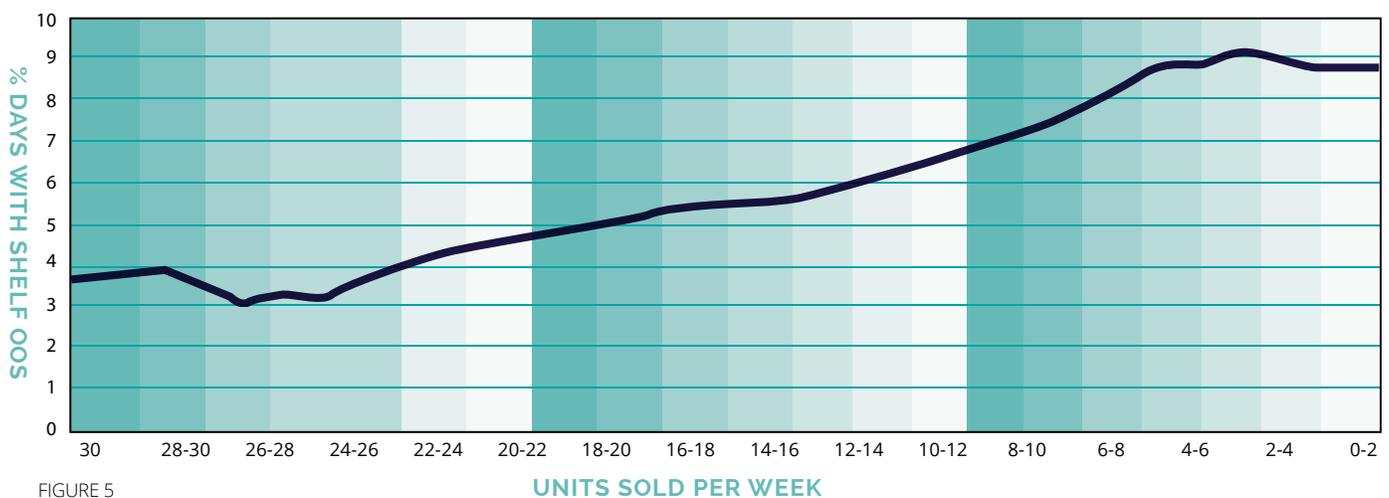


FIGURE 5

### What you can do:

- ✓ Identify and focus on high-performing items to decrease lost sales due to OOS.
- ✓ Identify temporary high-demand OOS items typically caused by promotions and external factors such as weather, seasonality, etc.

## Myth #6: Increasing the planogram quantity is the only way to reduce OOS on the highest volume items.

### Reality:

If there is not enough on the shelf – let’s increase the shelf space for the product! This response seems to be the common sense answer to high velocity product OOS.

But the reality in the store shows that increasing the planogram quantity typically leads to unintended consequences such as an increased propensity for mis-stocks (or slide-and-hide) and less diligent shelf replenishment practices. A typical example is high volume laundry detergent. Such a product can often receive as much shelf space in terms of carrying capacity and cubic feet as any product in a store.

However, RSi studies indicate that the shelves are rarely replenished to their capacity, which results in unnecessary stock-outs. Instead, overworked store associates tend to pull forward just enough products to “face-up” the shelf with a minimum presentation quantity – and nothing more – to ensure temporary planogram compliance. In this scenario, allocating more shelf space would do nothing to solve the issue.

While the dynamics of each product are different, a lean approach that favors reductions in replenishment cycle-times in smaller, minimum order quantities should enable the greatest reductions in OOS (and inventory) for the highest velocity items. In fact, there is a direct correlation between more frequent deliveries and lower OOS (as shown in Figure 6), as well as between days of supply per warehouse pack and lower OOS (as shown in Figure 7).

This approach can cause legitimate concerns. After all, it involves increased handling costs of smaller, more frequent touches. However, RFID-enabled visibility has clearly shown that large order quantities get over-handled (back and forth to the sales floor), whereas smaller orders matched to store replenishment quantities tend to be handled more effectively.

In any case, planogram quantity will do little to solve OOS – a review of replenishment practices will help significantly more. While this may come at a cost, these additional expenses must be weighed against the benefits of resolving OOS events.

### OOS Rate Vs. Delivery Frequency

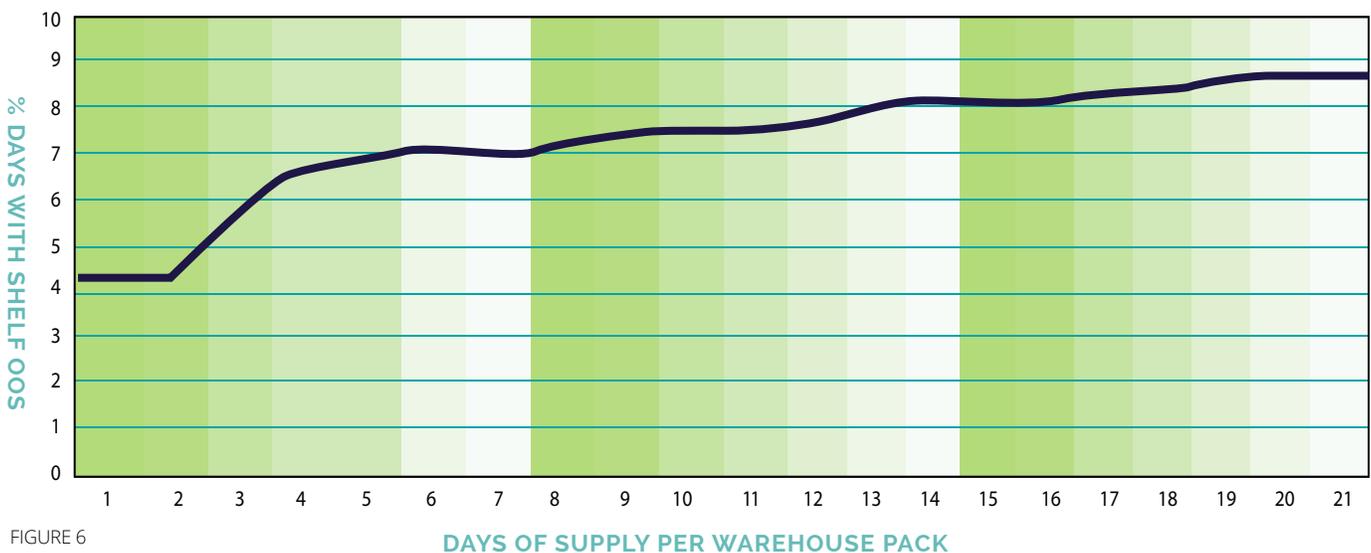


FIGURE 6

DAYS OF SUPPLY PER WAREHOUSE PACK

## OOS Rate Vs. Delivery Frequency



FIGURE 7

## Myth #7: Retail operations and merchandising teams already address all possible OOS.

### Reality:

Retail operations and merchandising teams play an important role in many retail channels for manufacturers. However, individuals in these roles are often overwhelmed by the sheer volume of items that legitimately need their attention on each store visit.

As a result, most companies provide their retail operations team with general priorities for each store visit. While these priorities are valid at a national level, they are often invalid at the store level – and this is where action needs to be taken. For example, most major CPG companies direct their merchandisers to check on all active promotions. However, when a merchandiser visits a particular store, only some (or none) of those promotions may have been shipped to that store.

Even worse, some of those promotions might not have even been executed in that store, but the merchandiser has no way of knowing this without stumbling across an egregious misplacement of promoted items or displays.

A more advanced example is the “no-scan” alert, under which a merchandiser is informed that a particular product in a store has not been scanned for 14 or 28 days. Without advanced statistics to filter and prioritize these alerts, merchandisers are often inundated with false alerts. Since the vast majority of these alerts turn out to be inaccurate, they are not addressed as diligently as necessary. In addition, many attempts by merchandisers to resolve distribution voids are thwarted by store associates who refer to inventory systems that report on-hand inventory in the store.

Without arming the merchandisers with detailed facts, for example differentiating distribution voids from phantom inventory, many long-lasting OOS will go unresolved. Yet, with more scientific approaches many of these episodes can be addressed before they reach the 14- and 28-day no-scan thresholds currently in place.

Retail operations and merchandising teams are among the most important levers for solving OOS events, but without an appropriate to-do-list their efforts are likely to be largely ineffective.

### What you can do:

- ✓ Provide better and more effective direction to very specific issues in store by empowering field teams with better overall visibility into store merchandising activities.
- ✓ Leverage a workflow that combines field data capture (through reports or mobile solution), closed-loop feedback to identify trends, and tailored recommendations that direct the ‘next best action’ during store visits.

## The Key to Improving OSA and Solving OOS

As the consumer goods industry moves beyond the hype of Big Data, those companies that are able to leverage vast amounts of demand data and turn it into actionable insights (and ultimately, drive sales), will emerge as winners. This is only possible when products are on the shelf for consumers to buy, whether that shelf be physical or digital. Improvements to OSA will become a pre-requisite of successful omni-channel strategies as fulfillment determines success. Additionally, such initiatives bring retailers and suppliers together to collaboratively solve business challenges, thus enhancing trading partner relationships. By understanding root causes and implementing a multi-pronged solution which targets measuring, correcting, and ultimately preventing OSA issues, the retail ecosystem can successfully rise to the challenge of increasingly complex consumer demand.



To learn more about RSi's industry leading OOS solutions, contact [marketing@retailsolutions.com](mailto:marketing@retailsolutions.com).



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### ABOUT RSi

RSi is the world's leading provider of proven technology solutions that enable CPG manufacturers and retailers to grow, profit and rule – from supply chain to shelf. Twenty-seven of the world's leading CPG companies and nearly 250 of the top retailers trust RSi's unparalleled industry knowledge, best-in-class technology solutions, and deep data expertise to generate greater productivity and profitability. RSi's cloud-based data transformation engine is fueled by digitally enabled technologies that deliver real-time, actionable insights, seamlessly across every channel. CPGs and retailers recapture hundreds of millions of dollars in lost sales each year with the RSi IRIS platform, the world's #1 on-shelf availability solution. RSi's employees, located in 20 locations across the globe, are passionate about empowering customers to rule the shelf, and own the future. To learn more, visit [www.retailsolutions.com](http://www.retailsolutions.com).