



## PROFIT OPTIMIZED OMNI RETAIL SOLUTIONS

*Maximize profit. Improve customer experience.*

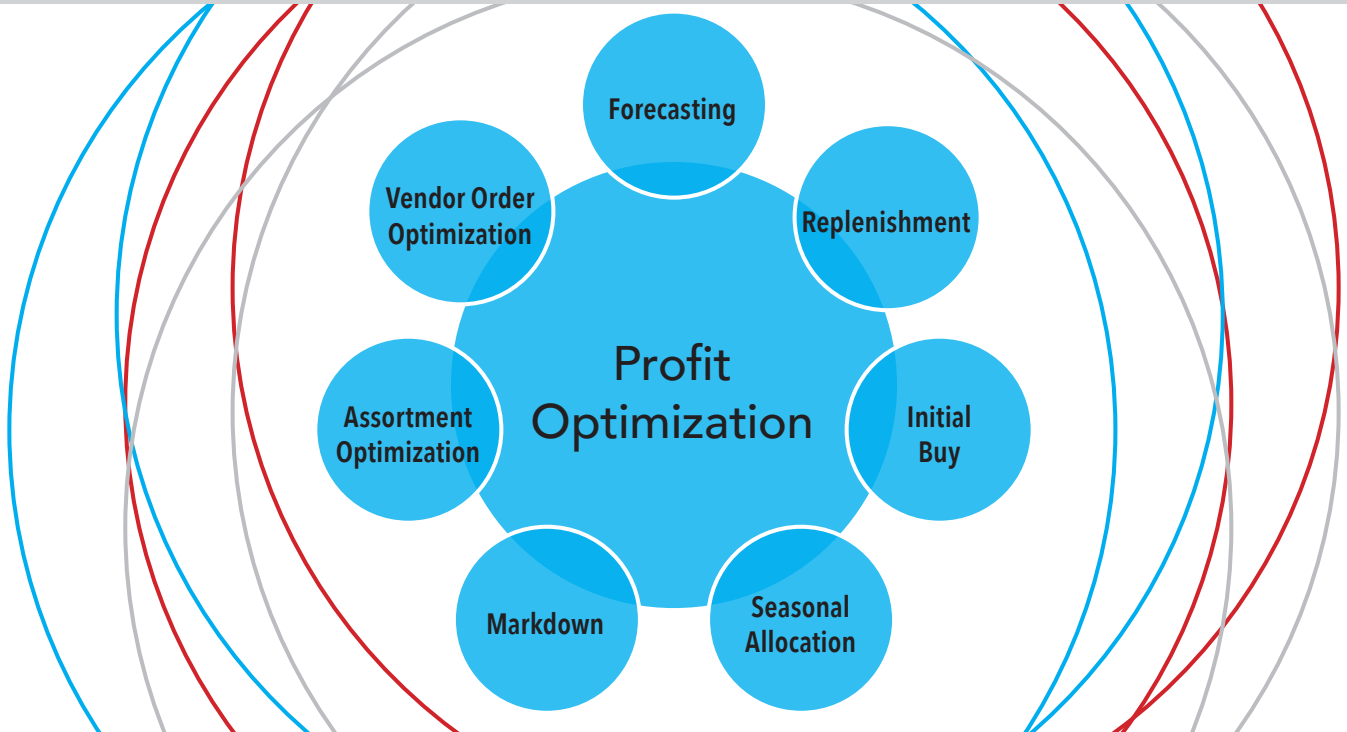
At 4R Systems, we look at retail inventory management differently. Our solutions for replenishment, seasonal allocation, assortment and buying decisions are all designed to achieve maximum profits.

We do that by using advanced analytics based on statistical and machine learning techniques and profit optimization algorithms.



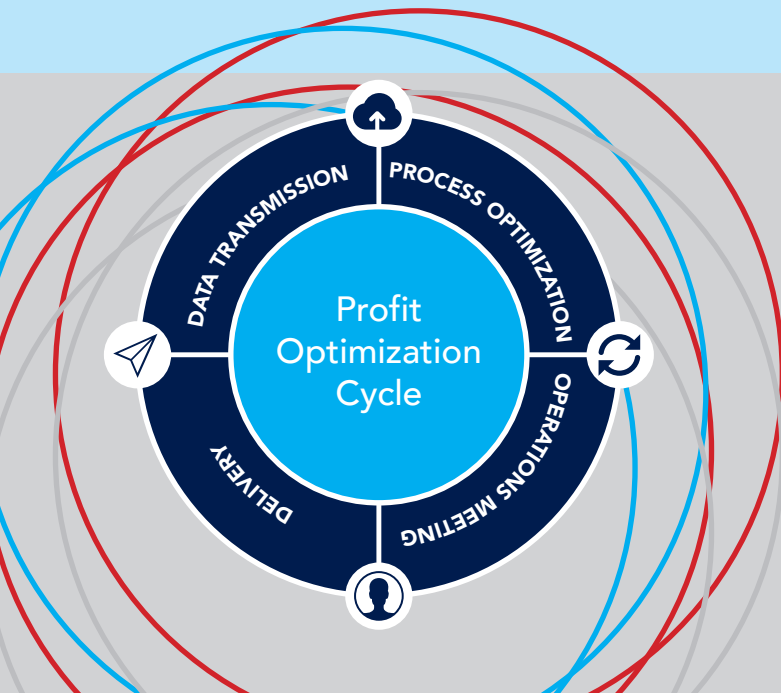
## PROFIT OPTIMIZATION SOLUTIONS

Our solutions take full advantage of advanced analytics, which leverage improved predictions to deliver profit optimal results across your supply chain and merchandising decisions.



## THE POWER OF THE CLOUD

All our solutions are delivered to you via the Cloud. That allows a low risk, quick implementation – no need to purchase software, hardware or training. All you do is set up data exchanges and use our web portal.



## PROFIT OPTIMIZATION: THE BOTTOM LINE

Traditional approaches to omni retail inventory management rely on substantial input from the user to control the process.

A guiding principle of our approach, on the other hand, is to reduce or eliminate the need for any judgment input, and provide answers that maximize profitability. The result is greater profits with less work.

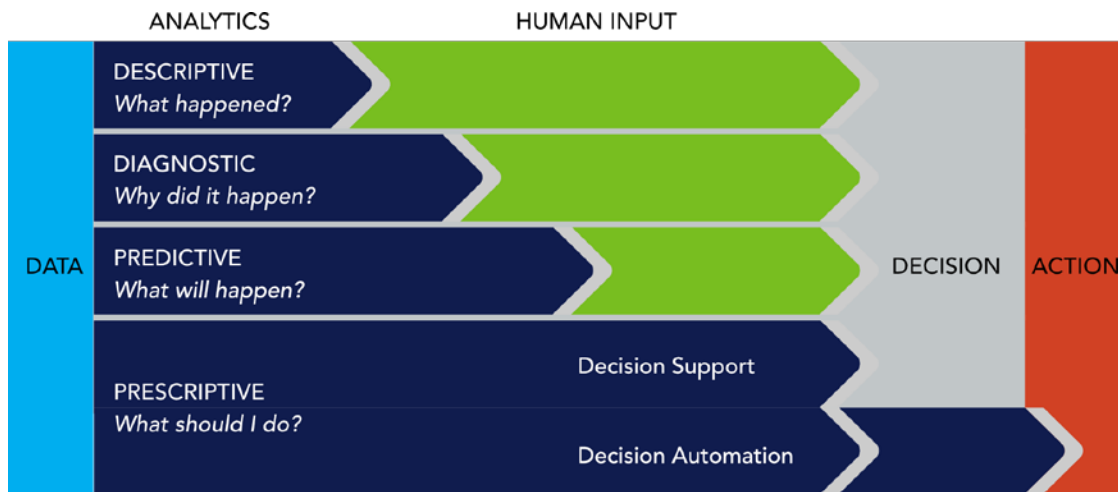
# FORECASTING

## STATISTICAL AND MACHINE LEARNING TECHNIQUES

Our **Forecasting Solution** enables retailers to identify pure demand with our proprietary approach to demand decomposition and lost sales estimation that is totally integrated with all 4R advanced optimization solutions.

Our solution uses sophisticated machine learning techniques and advanced analytics that incorporate the effect of promotions, seasonality, and pricing to determine *pure demand*. Further, it blends demand from multiple selling points including store, online and catalog as examples.

Each of our optimization solutions applies these elements to a forecasting algorithm tailored to the particular retail challenge it addresses—replenishment, seasonal allocation, season buy or early-life planning.



SOURCE: GARTNER | OCTOBER 2014

## USING ADVANCED ANALYTICS TO MAXIMIZE RETAIL PROFIT



### USING ADVANCED ANALYTICS TO MAXIMIZE RETAIL PROFIT

How to Leverage Big Data, Machine Learning, and Optimization in Your Omni Retail Supply Chain

www.4rsystems.com



Descriptive and diagnostic analytics are concerned with explaining what has already happened. Predictive analytics aim to tell us what will happen.

In retail inventory management, the most important use of predictive analytics is in demand forecasting. Traditional forecasting uses some variation of time-series analysis, in which past demand is used to predict future demand. Advanced forecasting uses machine learning (ML) techniques to mine the available data for additional information. That data is then used to adjust for factors not obvious from the

demand data alone. Machine learning eliminates the need for merchants to suggest potential predictors in order to guide the forecasting process; the algorithms let the data speak for itself to find the elements that matter, and how much they matter, at a very granular level.

Predictive analytics is making inroads in the retail world and starting to produce real results, but a better forecast isn't the endgame: you still have to figure out how to use it to achieve the ultimate goal of higher profits.

Click to read more about advanced analytics

# REPLENISHMENT

## MULTI-ECHELON, OMNI RETAIL & PROFIT-OPTIMIZED

### Replenishment Suite

We offer replenishment solutions for online, stores and DCs. When used together, they form a powerful multi-echelon, omni retail, profit optimized solution that makes sure you have the right balance of inventory in the right place. The solutions are highly scalable; we deliver hundreds of millions of reorderpoints to our clients every week.

Our **Omni Replenishment** solution automatically determines the level of inventory that will maximize your profitability. This qualitatively different approach targets the answer that maximizes profits while freeing up resources to focus on more strategic activities. Our solution also includes full support for a variety of promotional requirements.



Our **DC Replenishment** solution leverages the information generated by Omni Replenishment to form a truly optimized multi-echelon replenishment solution. In addition to supplying DC reorderpoints, it produces vendor order forecasts that can be shared with suppliers to improve fulfillment rates and reduce lead times.

Replenishment for your direct marketing channels (online, catalog, wholesale) can be handled as part of either store replenishment or DC replenishment, depending on your inventory holding requirements. Our solution supports every variation of fulfillment, from order-online, pickup in-store to order-in-store, ship-to-home.



# SEASONAL INVENTORY MANAGEMENT BUYING, ALLOCATION, AND MARKDOWN

## Seasonal Product Inventory Management: Buying, Allocation, and Markdown

Seasonal items face three major challenges: how much to buy, where to put it, and how to get out of it profitably at the end of the season.

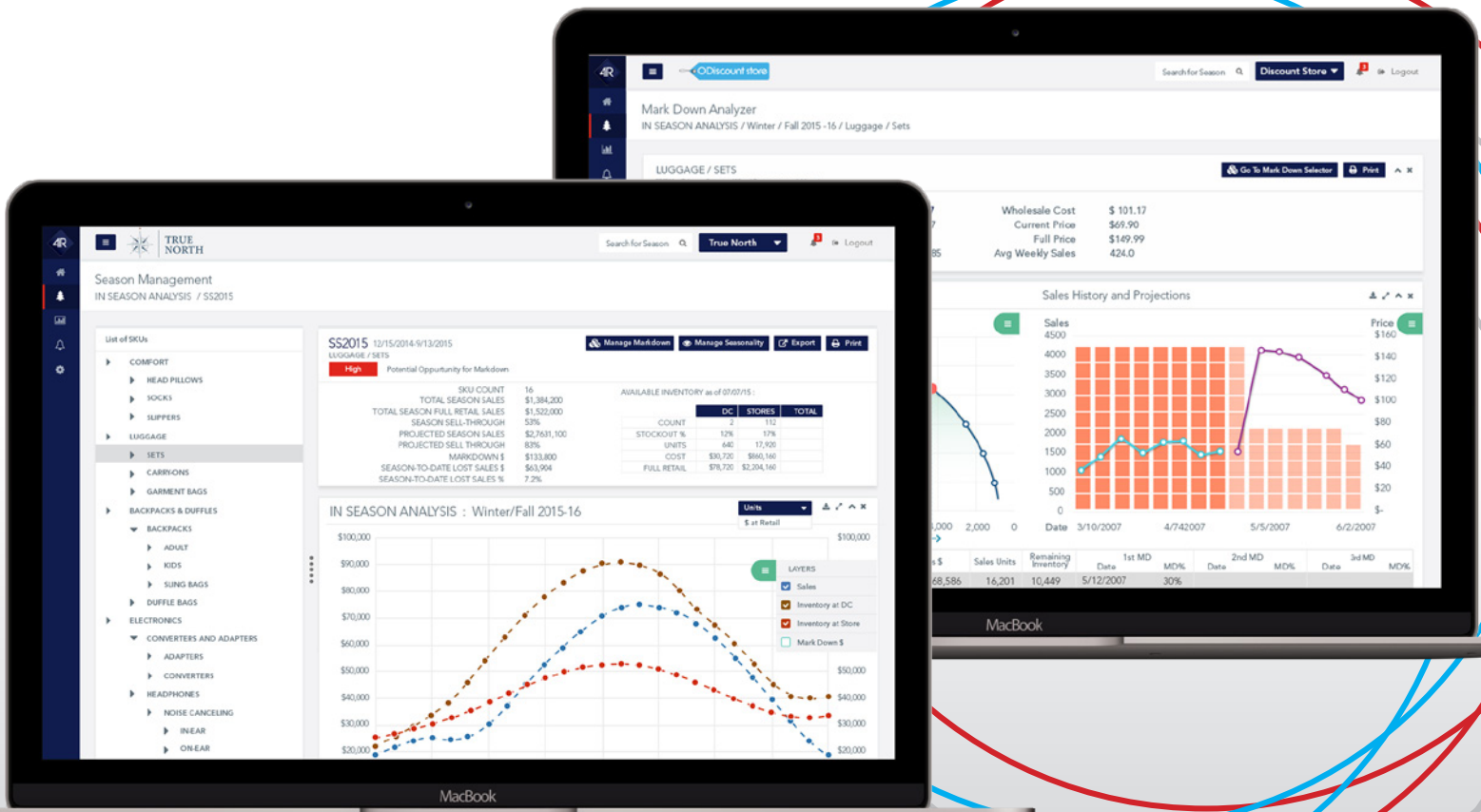
Our **Seasonal Buy Solution** helps buyers determine the quantity they should purchase based on past seasonal buys, sell-through percentage, and forecast uncertainty, considering misallocations and markdowns to get a true read on demand.

Our **Seasonal Allocation Solution** then handles the distribution of inventory to stores as the season progresses, by calculating the location that would yield the highest profit from an additional unit of inventory based on the point in the season, the store's current inventory position, and sales velocity.

Planners can use the web interface to track the seasons progress and manage adjustments to seasonality profiles based on exception management alerts.

Our **Markdown Solution** identifies items that need a lift in sales, determines the optimal timing and depth of markdown to achieve it, and prioritizes the recommendations in terms of expected improvement in profitability.

Together these three solutions create a fully optimized and integrated system for your seasonal goods.



# ADVANCED OPTIMIZATION SOLUTIONS

## ASSORTMENT OPTIMIZATION & VENDOR ORDER OPTIMIZATION

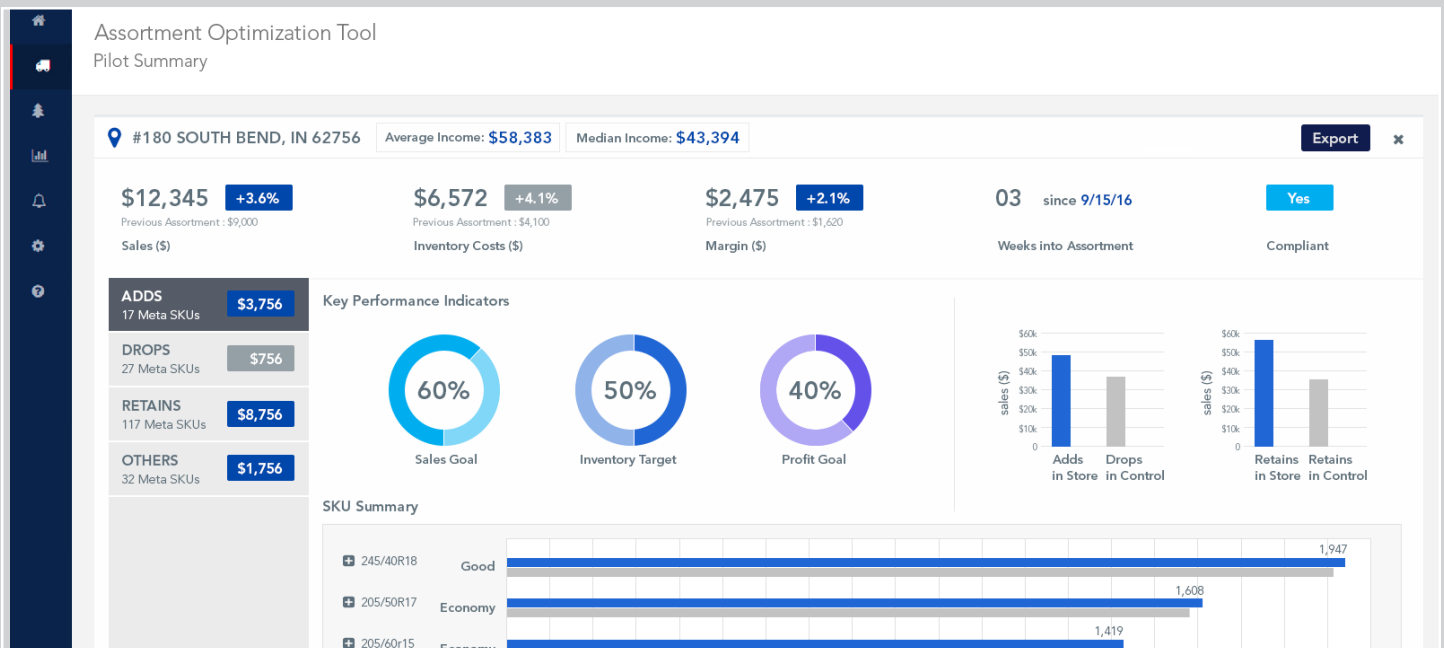
Maintaining an optimal item assortment shouldn't be an occasional affair. Our **Assortment Optimization Solution** will constantly assess the strength of your offerings and alert you when it's time for adjustments. Our full-cycle solution determines the most profitable assortments, helps you determine how many unique assortments to carry, projects the improvement you can expect once implemented, and tracks the rollout of the new assortment and resulting benefits.

Our analytics optimize based on true demand, not simply sales history, and can identify winning products not in your current offering.



Our **Vendor Order Optimization Solution** leverages our replenishment solution to provide vendor purchase orders that account for order minimums, forward buy opportunities, container constraints and other factors. It produces daily vendor purchase orders based on multi-echelon re-order points and DC inventory position.

A comprehensive web interface enables you to maintain vendor, DC and SKU information, as well as manage open-to-buy and fill rate targets. At the same time it enables buyers to review and modify orders in response to changing situations and business constraints.



WE  
MANAGE

\$45  
BILLION  
IN RETAILERS' REVENUE

8  
BILLION  
REORDERPOINTS ANNUALLY



4R's *inventory as an investment* approach is designed to maximize the profit opportunity of your number one asset: inventory!

### Solutions Tailored to Your Business Needs

Besides the production numbers that we deliver, some of our clients have questions and scenarios that they would like us to examine. For example, they might be considering shipping more frequently to their stores – how will that affect average on-hand inventory? We can answer that type of question by running a simulation. Other questions can be answered just by generating an alternate set of reorderpoints. Still others may require our Analytics team to get involved.

To accommodate these different levels of engagement, we offer three support tiers: Silver, Gold, and Platinum. Each level gives you access to a different frequency and breadth of analyses. You can choose the level that best fits your needs and budget.

**We are a true partner. We guarantee your profit. It's simple. Learn more at [www.4rsystems.com/profitguarantee](http://www.4rsystems.com/profitguarantee).**

4R Systems  
801 Cassatt Road, Suite 202  
Berwyn, PA 19312 USA

+1 610-644-1234  
[info@4rsystems.com](mailto:info@4rsystems.com)



[www.4rsystems.com](http://www.4rsystems.com)

US 02/10/17