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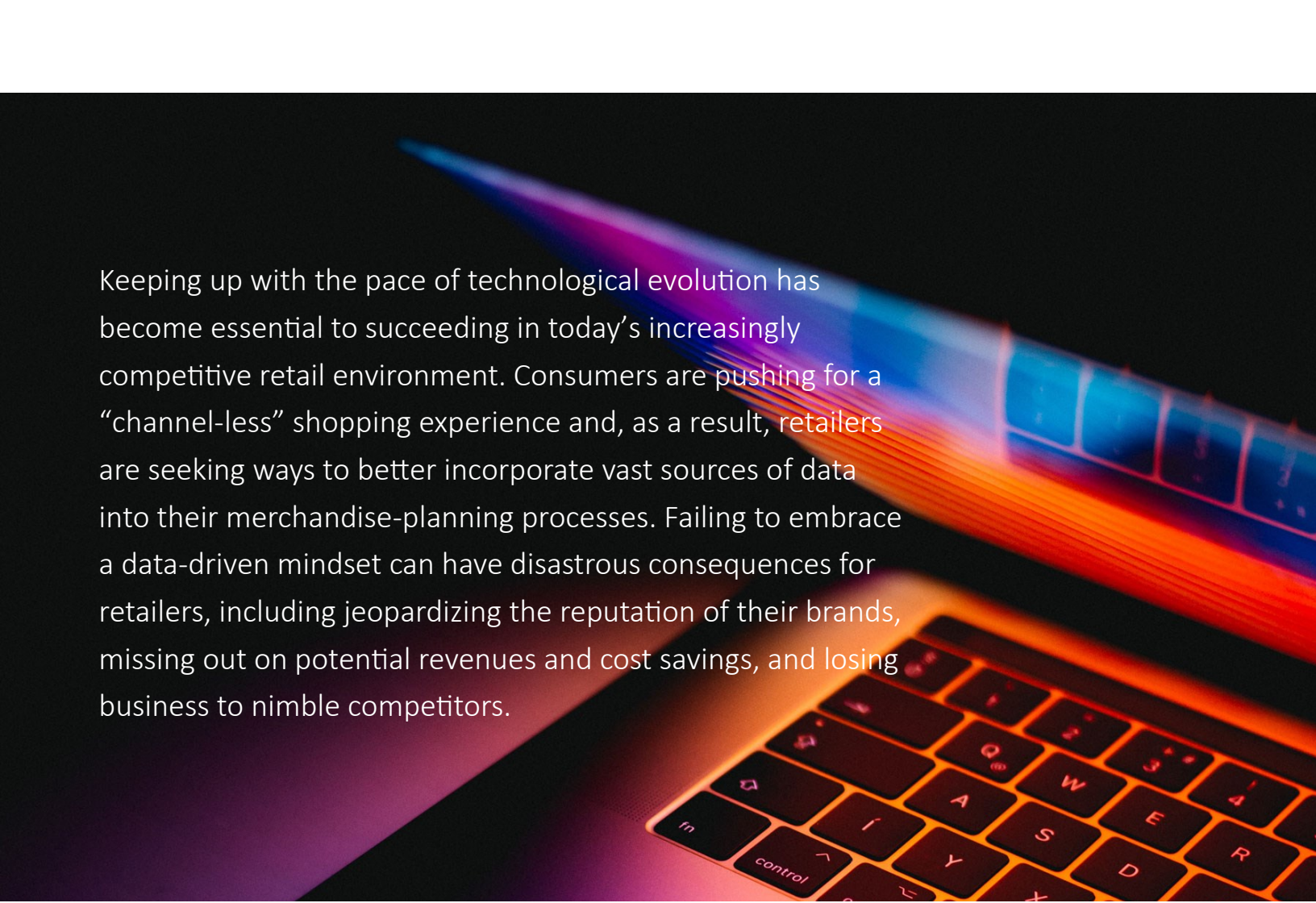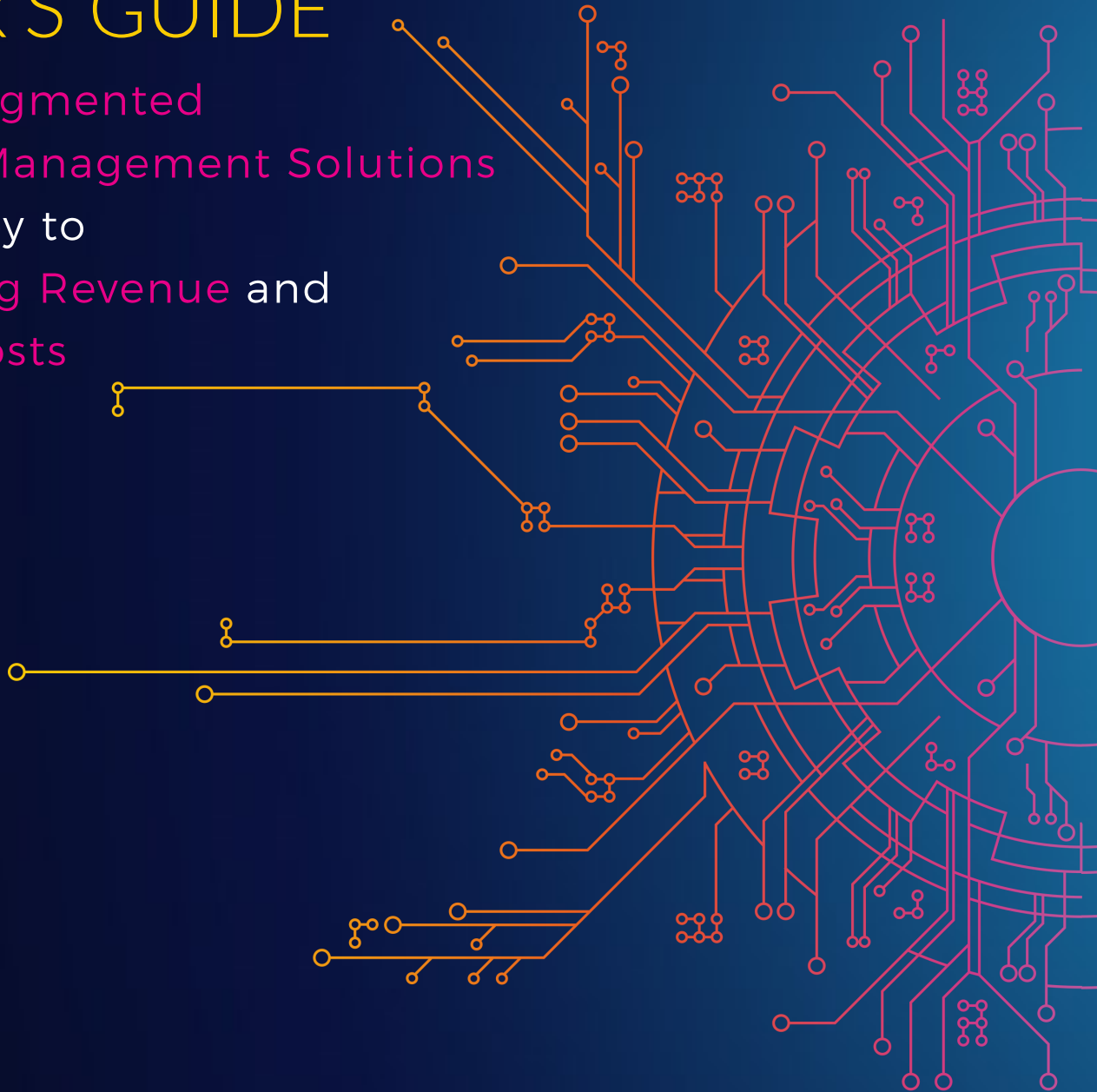# DEMAND MANAGEMENT
BUYER'S GUIDE

Why AI-Augmented
Demand Management Solutions
Are the Key to
Maximizing Revenue and
Cutting Costs

Mi9 RETAIL

Keeping up with the pace of technological evolution has become essential to succeeding in today's increasingly competitive retail environment. Consumers are pushing for a "channel-less" shopping experience and, as a result, retailers are seeking ways to better incorporate vast sources of data into their merchandise-planning processes. Failing to embrace a data-driven mindset can have disastrous consequences for retailers, including jeopardizing the reputation of their brands, missing out on potential revenues and cost savings, and losing business to nimble competitors.

Adapting to rapid change in consumer behavior requires replacing legacy merchandising systems and disparate planning systems with a unified, modern platform of solutions that can adapt as the retail landscape continues to evolve. Traditional rules-based forecasting solutions that were primarily based on intuition simply don't cut it anymore. AI-powered, modern demand management solutions look at facts, historical data, and market trends to help retailers improve forecast accuracy and make optimal business decisions.

To maximize profits, retailers must have the right quantity and mix of inventory on hand at all times. Their ability to deliver the right products at the right place, the right time, and the right price hinges on the right prescriptive actions from the merchandising foundation and planning solutions. What's more, the inventory's value must be accurately tracked to determine how best to price it, how much it can be marked down throughout the season, and, ultimately, if they should buy more of the same product or invest in something else.

In this guide, you will learn how artificial intelligence can automate and unleash the power of insights in the demand planning process to drive more value and growth. We will show you how the Mi9 Retail demand management suite utilizes artificial intelligence to prescribe decisions from planning localized assortments to forecasting demand, allocating and replenishing optimal inventory levels, predicting price and promotion strategies, and more. We will also look at concrete ways that Mi9 Retail has helped its existing customers increase sales revenues, accelerate growth, and reduce stale inventory.

# Machine Learning and Artificial Intelligence in Demand Planning

"Some people call this artificial intelligence, but the reality is this technology will enhance us. So instead of artificial intelligence, I think we'll augment our intelligence."
Ginni Rometty, CEO of IBM

Artificial intelligence (AI) and machine learning have become technology buzzwords that are often being thrown around but can be confusing to most retailers who might not fully understand how to apply AI in their own businesses. Although the terms artificial intelligence and machine learning are sometimes used interchangeably, their definitions do differ slightly. Artificial intelligence is a broad concept that refers to machines conducting tasks that would normally require the natural intelligence of the human brain. Machine learning, on the other hand, is one possible application of AI in which a machine is fed raw data and the machine learns for itself.

For retailers, the benefits of artificial intelligence are endless – from smarter purchasing, allocation, replenishment, and pricing decisions to more personalized customer engagement tools. According to Forbes, "machine learning works by taking the output of an application (for example, a forecast), examining that output against some measure of the truth, and then adjusting the parameters or math involved in generating the output (forecast), and seeing if the adjustments lead to more accurate outputs." The machine is thus learning from experience and getting smarter over time. AI can also include expert systems that read and interpret written language, known as natural language processing (NLP).
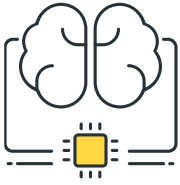
Harnessing the Power of Artificial Intelligence

Shifting towards an omni-channel inventory strategy gives retailers an opportunity to tear down organizational silos and leverage synergies across the business. There are numerous ways that retailers can overcome the many obstacles standing in the way of optimized merchandise-planning effectiveness. It all starts with automation. To gain new levels of efficiency, retailers must focus on three key areas: clustering, dynamic re-allocation, and customer-optimized inventory. With data analytics tools now doing much of the heavy lifting when it comes to number crunching, retailers can focus on the areas that truly drive business growth. Specifically, the integration of planning systems across channels gives planners better visibility and insights that can translate into optimal recommendations for pricing, promotions, and inventory.
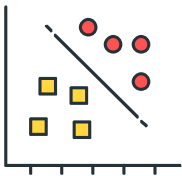
Clustering

Understanding and managing demand have increased in complexity, with the typical customer journey now crossing multiple channels. Retailers can improve forecast accuracy and assortments by using tools that help them better identify patterns and cluster stores based on key attributes such as geography, climate, and size demographics. Clustering can also be used to more accurately target assortments and promotions to the right consumers, driving improved customer service and revenues. The result is a single picture of the assortment plan including new, ongoing, and leftover product that can be assigned to planograms to align with space plans and constraints.
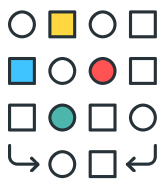
Dynamic Re-Allocation

Although an integrated cross-channel merchandise-planning process lowers the impact of misallocating product, moving inventory across channels or between stores is still a costly endeavor and should be only done to optimize business targets. A dynamic re-allocation approach allows for enterprise-wide visibility and accessibility, which provides retailers with the information they need to re-allocate inventory where it is most likely to sell. AI-powered allocation solutions use a robust set of algorithms to help users allocate the stock to the stores in the best possible manner to maximize selling potential and let the system do the heavy data analysis for them.
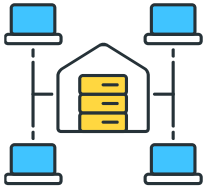
Customer-Optimized Inventory

A combination of customer demand and forecast data, general market trends, and CRM and transaction history can help retailers anticipate where customers will most likely purchase inventory. Integrating customers' history and behaviors into the planning process helps retailers satisfy shopper needs while forming a deeper relationship with them. The Merchandise Planning Benchmark Survey found that only 9 percent of retailers are currently practicing customer-optimized inventory strategies; however, 75 percent of retailers plan to do so over the next five years.

The Benefits of the Mi9 Retail Unified Suite of Demand Management Solutions

Mi9 Retail offers a singular cloud-based platform of solutions that enables retailers to automate and optimize their entire Plan-to-Sell process. The "Retail Operating System" consists of unified solutions and all of the industry-leading tools retailers need to streamline business processes across their entire enterprises and efficiently operate their businesses. The Retail OS is powered by machine learning with prescriptive analytics capabilities built into the demand planning solutions. These capabilities ensure you can deliver the right products, at the right place, at the right time, and at the right price, while profitably meeting customer expectations, no matter how or where your customers want to buy. The Mi9 Retail solutions can help you master your demand planning process with its unified suite of solutions and the role machine learning plays in optimizing the supply chain.

Merchandise Management System

The planning process cannot begin without the merchandise management system, which serves as the foundation of the business and houses all of the key information for the various retail hierarchies (including product, store, vendor, customer, and employee). Granular inventory information is calculated with up-to-date costs being recalculated at a store/SKU/day level daily. Mi9 Retail offers the only merchandise management solution built from the ground up to include a fully-integrated business intelligence system. It cleans the data and structures it before feeding it to other systems (either using built-in integrations or standard APIs), and ensures that everyone in the retail organization can rely on a single source of accurate information. Vendor management is handled within the merchandise system and dictates the financial plans that should be created within supplier lead times in order to build receipt plans and commitments. Once all of the data is organized in one place, the information flows out of the merchandise management system and into the planning modules where algorithms augment human decision-making to optimize the inventory.

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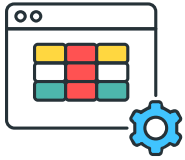
Merchandise Financial Planning

The planning process begins in the merchandise financial planning module where strategic financial targets are set and open-to-buy budgets are planned, which will automatically feed into the assortment planning solution to drive item-level assortment planning targets. The merchandise management system dictates how much inventory is available and where the inventory is located, and the user sets budgets around the inventory information that comes from the merchandise management system. Financial planning can include top-down strategic target setting, middle out, category or department level merchandise financial plans, and even bottom-up store level financial forecasts. Unlike other planning tools, Mi9 Retail supports hybrid versions of plans, because we recognize how important it is to look at both retail and cost as they relate to inventory that retailers are projecting to have moving into the future. For example, if you are using the cost method of accounting, you can see the cost projections of inventory going forward, and algorithms can estimate the retail portion. Also, users can plan multiple brands, channels, and currencies - all in a single view.

Assortment Planning

Once accurate sales, margin, and inventory targets and budgets are set, the assortment planning solution guides users through the process of creating localized, item-level assortment plans to achieve those targets within those budgets. The user builds a true bottom-up assortment of products supported by clustering and profiling to cluster customers or stores together. This creates assortments that are unique to those customers and localized to the specific stores. Once an assortment has been built, the users have access to a sales plan, receipt plan, and a commitment plan for each product in the assortment. The assortment plan can be rationalized and reconciled back to Merchandise Financial Planning to ensure that the assortments are aligned with the budgets set therein, resulting in maximized profitability and flow-through. The assortment plan dictates what is in the purchase orders, which are produced in the merchandise management system. The system can use profiling to smart-start the assortment plan for users, and build out assortment plans automatically, so that users can spend their time applying their unique knowledge of their businesses and customers. The solution automates most of the process, such as clustering, profiling, width and depth analysis, sales planning, and receipt planning. Automated algorithms identify and recommend the ideal width (how many different types of products a store carries) and depth (how many variations of a particular product a store carries) of the assortment within store clusters across product categories and attributes.
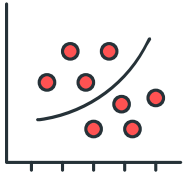
Site Clustering

The solution uses AI-powered classification to cluster customers and/or locations on multiple dimensions, including customer purchasing behavior, demographics, and store space. Dynamic clustering can be performed across time at any level of the product hierarchy. Users can create and maintain assortment plans by cluster, with the ability to shift the makeup of each cluster in reaction to the changing needs of the business.

Allocation

Once the physical inventory comes in and the targets and assortment plan have been planned, the information in the assortment plan informs the allocation strategies to send inventory to stores. In the allocation module, the user builds allocation strategies against the assortment plans, and initially allocates stock to stores. The solution utilizes a demand-based approach and pulls stock to stores to optimize stock across the entire supply chain, as opposed to traditional allocation methods that push stock to stores. Built-in logic adjusts to actual sales performance for continued stock optimization - the logic allows users to read the business as it actualizes, and then compares the actuals in the business to what the forecast was. The system can then re-adjust the forecast in order to recalculate and reoptimize the inventory as part of the allocation strategies the user is building.

Demand Forecasting

As soon as the stock is in the stores, the demand forecasting module kicks in, and the system starts re-trending demand of products based on sales and actual demand. The integrated solutions make it easy to compare what is happening in the business versus what was planned to happen, with the ability to re-trend (revise and resolve) where the inventory should go based on what is happening in the business and reoptimize the inventory. This can be done automatically, or users can review what the system recommends and approve or disapprove. The forecast tournament method approach delivers forecasted demand plans. Fourteen algorithms compete against each other and the solution determines which algorithm is the best fit method to apply to a type of forecast. Additionally, Mi9 Retail can perform demand forecasting at any level of the organization (product, location, time) structure.

Promotion Management

The Mi9 Retail promotion management system makes it easy to plan, forecast, and analyze campaigns, promotions, and events across all channels in one centralized system, all while incorporating their impact into the overall retail planning process. All departments involved in the process can manage all types of promotions in one place, streamlining the planning and execution of offline and online channels.
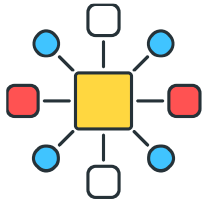
Replenishment

As demand is generated, the inventory planning and replenishment module kicks in to optimize inventory by calculating the optimal inventory to send to each location. Users can set policies and constraints into and within the supply chain to ensure retailers have the right inventory to satisfy the demand of the products they sell. This is where users can close the gap between stock need and stock levels, taking into account lead times, stock levels, inbound and outbound stock, and many other factors. The replenishment module automatically creates a forward-looking order plan that considers the demand forecast and current inventory levels and automatically replenishes the optimal amount of inventory. The system then recommends purchase orders and creates them in the merchandising system.
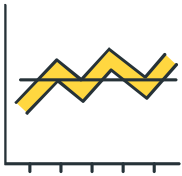
Price/Markdown Planning

This is the step in the process where Mi9 Retail optimizes price and markdown plans throughout the product lifecycle to increase revenues and margins. The solution provides intuitive, interactive views that planners can use to set multiple price and markdown structures with complete visibility into inventory, revenue, and margin impacts. The system can automate the full lifecycle pricing of any product, from initial price setting, promotion management, and price changes, to finalizing the pricing of the product through markdown planning. Markdown planning can be approached in a number of different ways, including by managing an entire set of products to determine exactly which products should be marked down and which ones can remain at a normal price point. Mi9 Retail uses an advanced rules-based pricing system, which is a way to enforce rules based on competition, legal compliance, financial, rounding, vendor, etc. The rules and validation engine simplifies and automates the planning of price changes and can recommend price changes for retailers based on configurable rules. Throughout the process, the rules and validations engine ensures that internal and external constraints are adhered to as well.

Mi9 Retail Customer Success Stories

With approximately 125 locations throughout Florida, ABC Fine Wine & Spirits is the country's largest privately owned wine and spirits retailer.

Prior to implementing a demand forecasting and planning application from Mi9 Retail, ABC Fine Wine & Spirits struggled with a homegrown replenishment system that yielded an unsatisfactory level of out-of-stocks on some labels and left the company over inventoried on others.

Thanks to the Mi9 Retail AI-powered demand management solutions, ABC has seen a decrease in inventory cost and has significantly reduced their warehouse costs.

"Out-of-stocks equate to lost sales, and lost sales equate to lost customers. The system has drastically reduced out-of-stocks and increased our GMROI (gross margin return on investment) at most stores. We're now seeing sales lift on SKUs that were previously plagued by out-of-stocks."

Kristine Becker Sr. Director of Purchasing of ABC Fine Wine & Spirits

Nashua manages a central warehouse that distributes office automation systems to more than 55 dealer franchises. Its purchase orders were manually generated, which resulted in suboptimal stock levels and a slow replenishment process. Nashua needed to overcome these challenges with new technology.

Soon after implementing the Mi9 Retail Demand Planning solution, Nashua increased its product availability by 95 percent.

"Mi9 Retail automated our manual replenishment process by providing accurate and easy-to-use replenishment mechanisms for the buying department."

Kathy Allan, Logistics Manager - Nashua

Mi9 Retail is the fastest growing provider of enterprise software for retailers, wholesalers, and brands. Mi9 enables the world's leading retailers to automate and optimize their entire Plan-to-Sell™ process, from planning to executing, influencing, and selling merchandise in-store, online, and on any device. Our corporate retail systems facilitate better planning, master data management, allocation, and replenishment, and our customer engagement and point-of-purchase systems boost revenue across digital and brick-and mortar channels. Our solutions are connected via a common analytics framework that serves as the foundation of the system and speeds time to insight with role-based dashboards, KPIs, and governed self-service data discovery. Mi9 Retail is committed to helping retailers on their path to success, so they can maximize revenue and customer engagement while minimizing costs.

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