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Why So Many Omnichannel Retailers Struggle With Inventory

This article by Jim Barnes, CEO of enVista
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If we could characterize today's retail in one word, I believe it would be "unpredictable." Speed of customers, the business and operations all play a vital role in maintaining — or trying to keep up with — consumer expectations, and inventory is the one variable that impacts the customer the most.

Inventory is typically the single biggest capital investment a company makes, with the majority of a retailer's working capital tied up in its inventory investment. Further, inventory continues to rise, up 5.3% from 2023 to 2024, according to the U.S. Census Bureau.

Decisions such as how much inventory to have on hand and where to locate and fulfill from can have a direct effect on customer experience, cash flow, distribution operations, transportation costs and profitability. The management of inventory is critical not only to the bottom line, but to the credibility of the brand and organization.

Is it too much inventory on the initial buy, inventory quantities allocated to the wrong brick-and-mortar store, the wrong item assortment by store or simply bad forecasting that used statistics-based algorithms to predict future demand?

We have found that all of the above are true — plus a lack of process, talent and organization metrics focused on gross margin return on inventory investment (GMROI). The difficulty lies in understanding the relationships among all factors. In addition, analytical solutions that have been acquired and then integrated are suboptimal and cannot solve the complexity of inventory planning and positioning. It is mandatory to account for all the quantitative and business factors that influence the business and their reliance on one common platform and data model that consists of demand forecasting leveraging AI, price, promotion, markdown item assortment and allocation.

This means that the standard forecasting and statistical techniques are no longer satisfactory when forecasting and planning in retail. Many additional components should be considered to predict customer demand, and even more importantly, the influence of these components should be evaluated simultaneously (not one by one) to optimize the combined effect.

Traditional Statistical Approach and Output

Traditional forecasting does not account for external factors that relate to year-over-year changes in trends and seasonality; it focuses on purely statistical patterns. This makes it difficult to calculate the effect of products that do not fit the repetitive or replenishable mold. For example, clothing and textiles require more advanced demand forecasting than traditional holiday food items, such as a Thanksgiving turkey. Today, most businesses are familiar with various systems to calculate the effects of seasonality, demand and weather-related changes, but in each case, a sophisticated system is required to calculate the effect of one (or sometimes a few) components on the resulting consumer demand.

Leveraging an AI/ML Approach is Critical in an Omnichannel Environment

However, understanding consumer buying preferences becomes far more complicated in an omnichannel environment. Advanced analytics and artificial intelligence (AI) become critical components needed to improve planning decisions and optimize inventory. AI provides a more sophisticated plan or algorithm based on historical data, drilling down, and testing and retesting data to predict every possible consumer buying and decision-making scenario. This also lends itself well to the current landscape where retailers are forced to shift inventory from in-store to online and expand fulfillment from store options instead of a traditional warehouse.

Inventory positioning and segmentation in today's omnichannel world is the largest driver of GMROI and customer satisfaction. AI logic can help predict what product will sell best from what location and provide insight into better fulfillment techniques and transportation management.

Calculating the true combined effect of all influencing factors is only possible when done on a common analytic platform using a wide variety of AI tools and methods, evaluating inter-influences between factors and employing the necessary business (retail) specific rules. Accurate insight is needed for demand patterns, product similarities, price sensitivity, promotions response and demographics.

Key Considerations for Retailers Considering Advanced Analytics and AI

Retailers looking to begin the journey toward implementing advanced analytics and AI into their omnichannel environments to improve inventory accuracy and performance should consider the following:

- **Define a vision.** What role would you like advanced analytics to play in your business? What value do you expect it to generate?
- **Take a focused, incremental approach.** Taking a step-by-step approach rather than implementing a large transition will help eliminate the risk of major errors and guide the team in determining what works and what does not. A slow rollout based on experience will maximize value. Think of it as an ongoing process of incremental improvements rather than a one-time major rollout where the results may be unclear.
- **Start the journey now.** For retailers looking to lead the space in advanced analytics and AI, beginning to test the success of low-risk cases and developing and scaling cases that are successful will offer a competitive edge in the future.
- **Remain flexible and nimble.** Advanced analytics and AI are still new to the industry, and there is no one right way to go about dividing ownership. In this case, it is important to be flexible in involving business leaders to ensure funding, identify business issues for AI solutions and relate it to the business's overall strategic objectives. Companies must be nimble in recognizing, prioritizing and pursuing new opportunities as they arise to maximize advanced analytics and AI value.

In today's highly unpredictable retail world, most retailers lack the ability to leverage AI methods based on deep learning algorithms to evaluate thousands, if not millions, of permutations simultaneously. Beyond technology, there is a need for data scientists and applied mathematicians that work closely with merchants to maximize profitability and increase revenue. Brands and retailers that invest and balance the art of retail (product and customer wants) with the science of mathematics leveraging AI, big data and performance analytics will move from unpredictable to predictable and drive significant profitability.



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