The Science of Retail Analytics: Optimizing Investment Returns

Marshall Fisher
Co-founder of 4R Systems

Advanced analytics reveal the most effective strategies to grow retail profits. This technology is transforming the industry from instinct to information-driven decision-making. 4R Systems has made the pathway wide open for those ready to take advantage.

Profit Optimizing Retail

4R

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Marshall Fisher and Ananth Raman began experimenting with retail performance metrics in 1995. Back then, the industry relied on gut instinct and raw sales data to help make many buying decisions. The most common way to achieve higher revenue and profits was to drive top-line sales. This was accomplished by opening new stores or expanding the business footprint.

The idea of inventory optimization based on scientific methodologies and analytical solutions had not fully captured the attention of retail executives or investors.

Fisher, a co-founder of 4R Systems and UPS Professor of Operations and Information Systems at the Wharton School, University of Pennsylvania, with Ananth Raman, saw the immense opportunity to bring science into retailing. Fisher proposed redirecting investment strategies to focus on operational precision to drive net profits.

"There had been a major change on Wall Street called the Rocket Science movement. Financial firms were hiring PhDs in physics - hence the name Rocket Science – among other technical areas, and applying analytics to the investment world," Fisher said.

"When you look at retail, it too is all about investments. Investors buy stocks of companies. Retailers buy stocks of products they carry in their stores. In both cases you want to get a return on those investments. Why couldn't we do the same thing in retail – create a retail rocket-science movement?" Fisher asked.

The movement began in large part with work that Fisher and Raman, now UPS Foundation Professor of Business Administration at Harvard Business School, began conducting around inventory optimization. It also soon led to the founding of 4R Systems.

With a grant secured to form a foundation, Fisher and Raman began a two-year project. The project involved 32 retailers who met and shared their challenges. As a result, Fisher and Raman found ways to use data analytics to improve forecasting demand and inventory management.

"We helped the retailers share what each was doing to inject analytics into inventory operations. We also conducted projects with some of the retailers in the inventory management, forecasting and replenishment areas," Fisher said.

"We started seeing significant results and realized that a transformation was about to take place. Business is always a blend of art and science. But then it was about 99% art, and 1% science, and that had to shift to more of a 50%-50% balance," he said.

One of the most critical findings from the research is that relying on increasing sales to propel net profits becomes a poor long-term investment strategy.

Retailers doing well early on in their lifecycle often turn into high growth store opening machines to drive revenues. As they mature, they must begin generating strong comp sales returns to maintain profit momentum.

"If you look at Walmart, for example, average sales per store peeked in 2006. Incremental sales per new store also were getting smaller and smaller," said Fisher.

At that point, retailers should stop focusing on new store openings as the pathway to higher profitability. Instead, the greatest profit gains come from optimizing operations. This can be done by using assortment optimization, inventory replenishment, demand forecasting, and seasonal allocation.

For retailers, the biggest key is determining what actions will deliver the greatest ROI. It is a logical process but it requires a change in mindset and degree of intellectual modicum to think it through.

"Analytics is extremely hot right now. I see quite an appetite for adopting analytical tools and enhancing short-term and long-term retail profitability," he noted.

These ideas, details, and examples are spelled out in Fisher and Raman's book, "The New Science of Retailing." They can also be found in the Harvard Business Review articles "Curing the Addition to Growth," by Fisher, Vishal Gaur, and Herb Kleinberger. These topics are further discussed in "What Products Should You Stock," by Ramnath, Vaidyanathan, and Alteryx.

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> - Marshall Fisher, Co-founder of 4R Systems

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