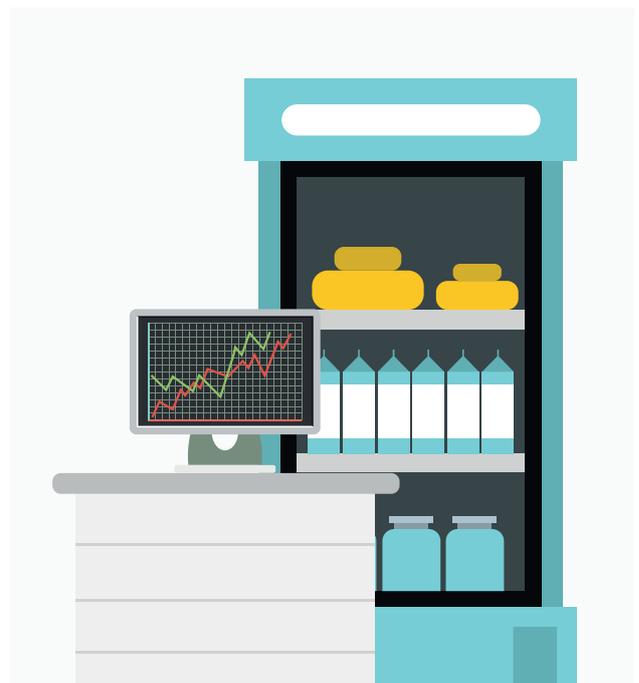


Thorogood case study  
Pharmaceuticals

# Growing Sales with Predictive Analytics

When a leading pharmaceuticals company engaged with Thorogood on a proof of concept for a new predictive analytics package, it was looking for a solution that would improve its performance in one of the most crucial pinch points of CPG sales: the amount of shelf space that retailers devote to a company's products.



For manufacturers, maximizing profit requires both maximizing the rate at which each piece of shelf space results in the sale of an individual item, as well as maximizing the aggregate shelf space occupied by one's products in each store. Given the physical realities of time and space, it is a constant priority to ensure that the shelves in any given retailer are stocked with an optimal mix of brands, product types, and package sizes.

At this particular firm, retail sales distributors play a central role in this quest. Operating through a network of distributors, the company charges its sales reps with maintaining stock of its broad portfolio of products in their assigned stores. When it engaged with Thorogood, the company's end goal was to leverage the power of analytics to help its distributors maximize sales by avoiding out-of-stock items, decreasing returns, increasing the range of its products on shelves, and putting strategically important products in front of customers. With these objectives in mind, Thorogood drew on its vast experience in data engineering and data science to create a proof of concept for a solution that would use sales data from retailers to predict future demand, match products to that demand, and right-size order quantities to optimize the flow of products onto and off of shelves. The resulting project offers a good example of the way in which technology and predictive analytics can boost sales in any product-driven industry.

## Understanding the story that data has to tell

At Thorogood, analytics is seen as a continuum in which models and approaches should be selected with transparency and with business adoption in mind. Any analytic solution should be guided by business objectives and aimed at helping companies create competitive advantage from their data. In the CPG space, two of the biggest factors in bottom line performance are a company's ability to optimize restock volumes and its ability to identify market opportunities for new products. For the client in question, restock volumes were a function of the purchasing behavior of customers and the inventory levels of retailers. Thorogood consultants knew that if they could create a solution that could accurately forecast those two variables, it would give its client a significant tool in facilitating the flow of its products. To accomplish this, they devised a model that applied predictive statistical techniques to sales and inventory data and retailer characteristics to create a comprehensive picture of consumer and retailer behavior over time.



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### Find out more:

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They key to an accurate projection of the future is knowing how to deal with incomplete information.

In the present case, that meant accommodating for the fact that most of the client's sales reps visited most stores every two or three months, rather than daily or weekly. Given this intermittent historical data, Thorogood's consultants utilized Croston's Method, a forecast strategy for products with discontinuous demand that makes exponential smoothing estimates based on mean estimates before calculating the average interval between demands.

The Thorogood team also used a clustering algorithm to identify relevant stores whose sales and inventory could be used to project appropriate levels for other points of sale. Clustering is an unsupervised learning approach used in data science that looks to classify individual data points into groups that form naturally but are not defined explicitly in the data. Once the algorithm grouped the stores into clusters, they were able to identify the best-selling products in each of them and compare them to the product portfolio of each of the individual stores in the cluster. From there, the team was essentially able to fill in the blanks, identifying which of the best-selling products were missing from which of the stores.

## Math plus technology equals competitive advantage

Getting the most out of your data requires an understanding of what that data can tell you, and the best way of finding those answers. Without an in-depth interpretation of a company's data and the statistical wherewithal to understand the story that data is telling, hardware and software is essentially useless. Thorogood's expertise in that department has helped our client lay a foundation upon which future applications can be built to reap the full benefits of any analytics solution.