



Smart Pricing in Retail

Predictive Analytics to Optimize Price

Most retailers, whether in brick-and-mortar stores or in e-commerce, determine prices with macro-level predictions - that is, based on averages of large swaths of customers. Additionally, when it comes to when and what to mark down, the decision often hinges on a store or product manager, and it can be based more heavily on the need to get rid of excess inventory than to optimize sales.

While these strategies can sometimes be relatively effective, they are not optimal. For example, price optimization based on averages does not take into account subtle nuances in different geographies or in specific stores. And considering markdowns only when there's inventory to get rid of is a reactive solution instead of a proactive pricing strategy. Ultimately, neither of these strategies takes into account the specific data behind what drives sales of a particular, individual product and how that specific product can be best priced to maximize revenue.



Predictive Analytics to Optimize Price

About Our Customer

Our customer is a leading retailer in Europe with more than 3,500 stores as well as an e-commerce component that offers home delivery services. With hundreds of thousands of employees and customers spanning multiple countries, this retailer stays on the cutting-edge of big data technologies to remain competitive in a growing market.

Industry

Retail

Market

EMEA

Use Case

Price Optimization

Challenge

Set Prices Consistently and Efficiently

A large retailer with both physical stores as well as an online presence was losing money due to being undercut by competitors on price. They also found that their customer base tended to wait until the end of seasons for huge markdowns and would only then buy certain seasonal products, which skewed their predictions for how to stock items in the future and perpetuated the pricing issue. In addition, they struggled to efficiently change prices and keep them consistent across stores and online - often, this resulted in inconsistent pricing, especially when individual store managers made their own decisions on sales.

The retailer wanted to improve their pricing strategy by:

- Understanding what drove customer purchasing decisions for specific products and what prices would resonate best.
- Easily understanding the price offered by all competitors in real time.
- Updating pricing consistently across stores and online.

Solution

Incorporate Robust Predictive Analytics in Pricing Strategies

The retailer introduced Dataiku Data Science Studio (DSS) into their data team's processes (specifically the smaller group responsible for advising on pricing) to incorporate predictive analytics at scale. They worked with Dataiku to produce a final data project that:

- Considers competitors' pricing and uses it in a predictive model to determine, for specific products, whether the overall business can support aggressive price-based competition for that product.
- Leverages Dataiku's REST API

to adjust pricing in production automatically based on a specific set of predefined features.

- Uses real-time monitoring of models in production to ensure pricing model performance isn't drifting and that pricing changes in production over time are well documented.
- Includes a robust pricing dashboard based off of the predictive pricing model that alerts and allows physical stores to react to recommended pricing changes or online pricing changes.

The team was able to get their pricing optimization model up and running in a total of six months, and they are working with other parts of the data team to optimize additional parts of the business (like supply chain and inventory management) using predictive analytics.

Impact

Reduce Excess Inventory, Boost Sales

With the robust predictive pricing solution developed using Dataiku, the retailer was able to reduce excess inventory by setting prices that allow products to sell better and predicting what price will be effective at what time. In addition, the retailer:

- Increased the productivity of brick-and-mortar store managers, who now use the pricing dashboard to automatically inform data-driven pricing changes.
- Reduced the number of discrepancies between online and in-store pricing (using customer service complaints about those discrepancies as a proxy) by 65 percent.
- Boosted sales by 10 percent by using the model to determine optimal pricing at the right time instead of conducting huge temporary markdowns at the end of a season or upon product expiration.

**Technology**

Python, HDFS, R,
Spark Streaming

Time

6 months

Team

3 Data Scientists
2 Data Analysts
3 Data Engineers

A single platform for data
scientists, analysts,
and business users



Pricing dashboards for store/
product managers

Real-time monitoring of
models in production



REST API to automatically
adjust pricing when appropriate

Use Predictive Analytics to Optimize Price

- > Real-time monitoring of models in production to ensure performance.
- > Predictive model to determine ability to support aggressive price-based competition.

GET STARTED