

A Global Distributor of Plumbing Supplies Unlocked a Potential Annual Profit of \$15.6M by Optimizing Pricing

CPG

CPG analytics

price optimization

Pricing Analytics

Optimized Pricing

Custom AI Application



Industry
CPG



Region
AMAR



Custom AI Application
Price Optimization Application

Impact

Problem statement

Approach

Testimonial

Impact

- Unlocked an annual profit opportunity of \$15.6 million
- Simplified customer segments and created more succinct, intuitive 15 segments, instead of the pre-existing 38 segments
- Tailored optimal pricing for each of the 100k customers across a portfolio of approximately 7k products

Problem Statement

The client, a global distributor for plumbing supplies, sold products to over 100k customers, in just one demographic, Texas, and just within 2 years. The pricing team of the company had to ensure that all products in its extensive portfolio were being sold at the right price structure.

However, the sales team had the ability to negotiate these prices with the customer, and in instances, could even override the centrally recommended price set by the pricing team. As a result, 50% transactions and 70% revenue were attributed to products sold at a price other than the centrally recommended price.

Adding further complexity to this was the fact that the customer was using a legacy framework of 38 customer segments to implement its pricing strategies. These segments had been created over time, based on subjective and often inconsistent inputs from the field sales.

Approach

To optimize product level pricing, four key steps were undertaken by TheMathCompany:

- A deep understanding of nuanced aspects, such as pricing of a complex business, was developed
- Customer segments were created such that they were both mathematically sound and intuitive to business stakeholders
- Price elasticity was modelled for each product-customer segment
- Price simulations were run to quickly zero in on the optimal price

Once the optimal prices were finalized, they were tested in the field, using carefully designed price experiments. Upon experimentation and market simulation, the most-suited pricing structure was identified.

Testimonial

"I would like to thank TheMathCompany for the great job done in working with our internal team and producing multiple dashboards during the contractual period. The KT provided was extremely detailed in terms of content and delivery, and the dashboards built were very effectively structured and documented" – Data and Analytics Manager, Leading Global CPG Firm.

Solution

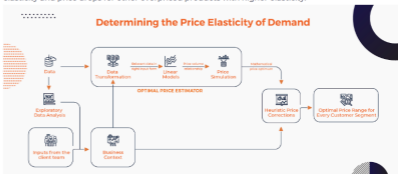
Here's a deep-dive into the multi-step solutioning process undertaken by TheMathCompany to determine optimum pricing structures:



After gaining business context, the team evaluated existing customer segments and worked towards simplifying it to ensure that it is aligned with existing customer behavior. Factors like historical purchase frequency & value, sensitivity to price changes, engagement levels, size of the customer's business, customer's industry, etc., were considered. A variety of segmentation algorithms were explored to zero in on a combination of heuristic and tree-based algorithms to group customers into 15 simplified segments.



For each combination of product and customer segment, individual linear models were built to determine the Price Elasticity of Demand (PED), which, in turn, was used to simulate the impact of different price points on profitability to determine the optimal price. This resulted in recommendations of price increases for a selection of products, taking advantage of their lower elasticity and price drops for other overpriced products with higher elasticity.



A carefully constructed set of A/B tests was chosen to run price experiments that would test the optimal prices in the field. This step helps build confidence with key stakeholders, while also allowing the team to gather critical feedback to refine the price structure, wherever necessary.

For the same, 50 combinations of products and customer segments were selected keeping a few key factors in mind:

- The right balance of impact – big enough to observe tangible impact but not so big that the cost of experiment becomes prohibitive
 - Business priorities of the customer
 - An understanding of how the field teams will respond to price changes in each of the different products and customer segments
 - Data sufficiency to measure the results of the test with a high degree of confidence
- Statistical power analysis was undertaken to determine the right sample size for the number of transactions required, which, in turn, was key to determining the number and mix of customers, as well as the duration of the experiment. Finally, a Power BI dashboard was designed to help key business stakeholders track the impact of the price changes on a variety of key metrics, including profit, adoption by the field sales team and customer feedback.

In all, the resulting solution unlocked a potential annual profit of \$15.6 million for the client company and the optimal price range was successfully tailored to each of the customers in the target demographic comprising 100k customers across a portfolio of 7k products.