CASE STUDY

MACHINE LEARNING SMART PRICE CALCULATOR SOLVES PRICING CHALLENGES

Client Background

Our client is a leading distributor of specialist building products in Europe, with strong positions in its three core product areas of insulation and interiors, roofing and exteriors and air handling.

The company plays a critical role in the construction supply chain, ensuring that customers receive the right product, in the right place, at the right time. It operates from trading sites across the UK and Ireland and Mainland Europe, and employs around 9000 people. Its main countries of operation are the UK, France, and Germany.

Business Challenge

Our client is a multi-national group that has grown through acquisition and has been managed historically as a portfolio of businesses. Due to the nature of its operating model, business processes and systems were not always standardized and there was minimal integration of processes and data. For example, they had a multitude of standalone ERP systems across multiple geographies.

One of the crucial issues our client faced was the unique pricing approach because of the amount of transactions and market share they have. There were different CPQ (Configure, Price, Quote) processes supported by multiple systems across the company. Determining the best price for a particular deal or customer was challenging and there was no price control mechanism in place. Our client's employees often would use gut instincts and experience when quoting a price to a customer, which resulted in products being sold for low or negative margins, impacting overall profit.

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Specific goals our client had in working with SoftServe included:

- Leverage machine learning algorithms to provide flexible price recommendations to maximize margin dollars without the risk of losing business

- Analyze external pricing influences: market, demand, seasons

- Determine pricing structures for initial pricing and discount pricing, including rebates and historical deals

- Optimizing demand prediction for each category/SKU

Project Description

SoftServe analyzed our client's business challenges and developed a Smart Price Calculator to calculate the 'right' and competitive quote for every particular customer, whether B2B or B2C. The core of the calculator is a machine learning engine that calculates best deal price based on historical data, products, and customer characteristics.

During a four week Discovery PoC, an onsite was conducted to elicit the scope of requirements and PoC acceptance criteria, analyze as–is state from business and technical perspectives, and gather and investigate data sources. Subsequently, a PoC implementation was conducted on two main tracks: algorithms + R/Shiny application and UI/UX.

POC COMPONENTS

Data Preparation

- Aggregate data in unified format and units, include rebates, purchase and stock data, compile transactional data

- Filter and correct any inconsistent information, including data that is out-of-date, redundant, incomplete, or incorrectly formatted considering multiple sources

Intelligent Pricing Approach

- Perform machine learning-intensive modeling on the customer, branch, product, and quantity level based on a XGBoost classifier, customer and product views and insights

- Building R/Shiny dockerized application to assess the pricing engine
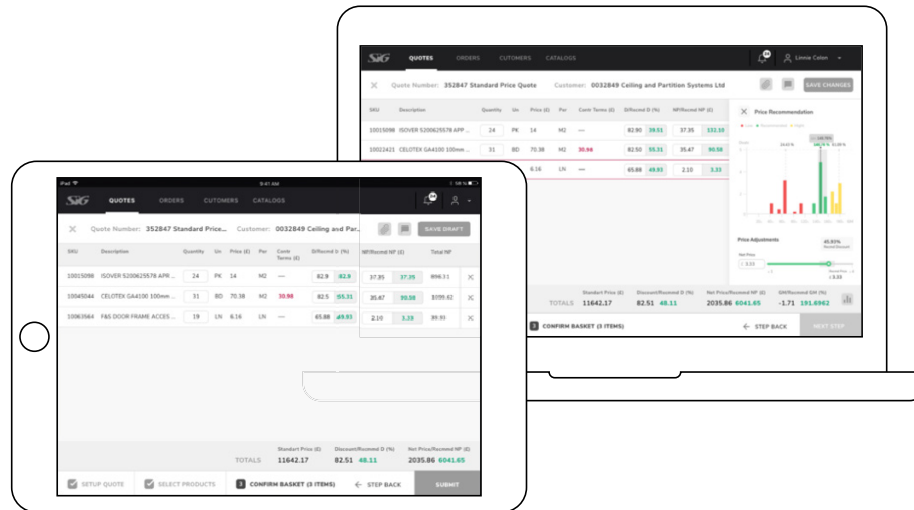
Demand Prediction

- Understand general trend and seasonal variety of customer requirements based on historical data for increasing effectiveness of marketing planning

UI/UX Clickable Prototype

- Create a UI prototype to show end user flows

Technology Stack

- R/Shiny, Python/iPython
- XGBoost
- Docker
- MS: Azure, SQL Server , SSIS

Value Delivered

SoftServe successfully delivered the following POC results and our client used these as the basis for further MVP pricing product development.

POC Results

- Data understanding and aggregation, units of measure unification

- Machine learning-driven algorithms to prove the concept of pricing in the app back-end

- Pricing on the customer, branch, product and quantity level based on XGBoost model

- Demand prediction on the product category level

- Price break-down visualization, including simulated competitor price adjustments and rebates

- Customer and product historical marginality view

- R/Shiny dockerized application to assess the pricing engine, git repo

- Summary of the approach, data quality issues, MVP suggestions

ABOUT US

SoftServe is a digital authority that advises and provides at the cutting-edge of technology. We reveal, transform, accelerate, and optimize the way enterprises and software companies do business. With expertise across healthcare, retail, media, financial services, software, and more, we implement end-to-end solutions to deliver the innovation, quality, and speed that our clients' users expect.

SoftServe delivers open innovation—from generating compelling new ideas, to developing and implementing transformational products and services.

Our work and client experience is are built on a foundation of empathetic, human-focused experience design that ensures continuity from concept to release.

We empower enterprises and software companies to (re)identify differentiation, accelerate solution development, and vigorously compete in today's digital economy—No matter where you are in your journey.

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