Price Optimization for E-Commerce

Automated Pricing Decisions by Blue Yonder

Blue Yonder Price Optimization for e-commerce retailers tests and measures interactions between price and demand changes and automatically sets revenue- and profit-maximizing prices for different stages in the product life cycle, including markdown. It goes beyond simple competitive and rule-based pricing by using current and historical sales data, product master data and continuous optimization, allowing hundreds of prices to be optimized every day.

Price Optimization is a software as a service (SaaS) solution built on the Blue Yonder Platform, which can be integrated into an e-commerce solution using standardized APIs.

Dynamic Pricing

Pricing is the core strategic component affecting company profitability. On average, a 1% change in price leads to a 10% change in profitability, and the smaller the company's margins, the more pronounced the effect. But many companies still lack the tools to approach pricing strategically and scientifically and instead rely on a number of rules or policies that have the wrong approach and no scientific basis:

1. **Cost plus pricing** – considers margins, but not optimal growth or the customer's willingness to pay
2. **Competition minus pricing** – leads to evaporating profits and sparks a race to the bottom
3. **Odd pricing** (99 cents) – is based on outdated assumptions about consumer purchasing behavior

The key determiner for prices is the customer's willingness to pay. This is influenced by a number of factors such as the product name, brand, related products in the same store, competitive products, presentation in the online store, time of day and day of the week. An ideal pricing strategy considers all of these factors and is based on scientifically validated hypotheses.

Price Optimization works for all phases of the product life cycle, from introduction to markdown sales. With Price Optimization, Blue Yonder customers typically see increases in revenue and margins of more than 5% (and up to 15%), while simultaneously increasing new customer acquisition and reducing return rates by more than 10%.

Key benefits

- Increased revenue and margins – more than 5%
- Reduced stock level by 20% during markdown optimization
- Reduction in return rates of up to 10% due to more competitive pricing
- Constant price updates based on the latest information – prices follow market trends
- Price optimization for both normal seasonal sales and markdown sales
- Low maintenance after initial setup – considerably reduces time spent on price management

Features

Price elasticity determination

Blue Yonder Price Optimization systematically tests different price points for a given product to calculate the resulting changes in demand. It then determines the price elasticity of demand for each product based on a collection of price and quantity pairs. Even for slow-selling goods, the price elasticity can be accurately determined by using cluster and aggregation algorithms and evaluating their describing features.

Once the price elasticity is known, the price for a product can be optimized according to the customer's chosen pricing strategy. After a short learning period, it sets the optimal price for each product, ensuring that the company's price implementation matches its overall strategy.

Based on transaction data, the market's price elasticity of demand can be predicted.
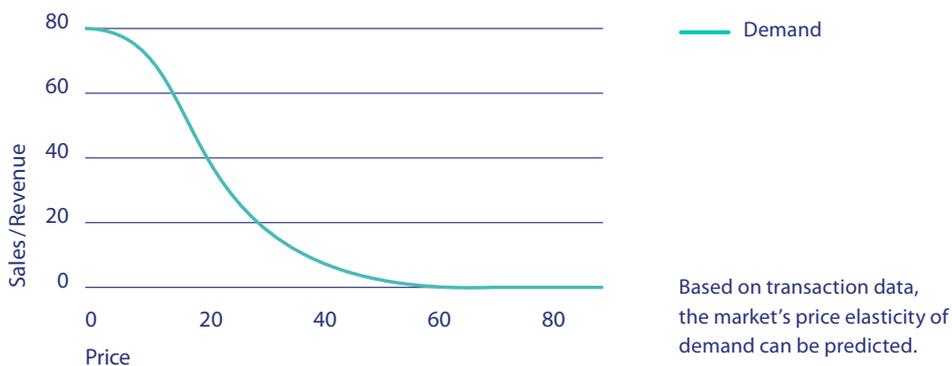
Revenue-maximizing pricing strategy

As the name suggests, this strategy sets the price so that the overall revenue for the product is maximized. It automatically detects the point where the effect of decreasing price offsets the effect of growing sales to calculate and revenue is no longer increased.

This strategy achieves rapid sales, but the revenue-optimizing price may be unprofitable for the company. It works best for growth companies and new product introductions where capturing market share is the primary goal.

Profit-maximizing pricing strategy

Profit-maximizing sets the price so that the overall profit margin for the product is maximized, taking into account the cost of merchandise and individual product return rates, not just the revenue that can be achieved.

This strategy optimizes for maximum profit – which could also include price increases or significant changes compared to competitive prices. It is most beneficial to established companies and existing assortments. It brings the fastest return on investment.
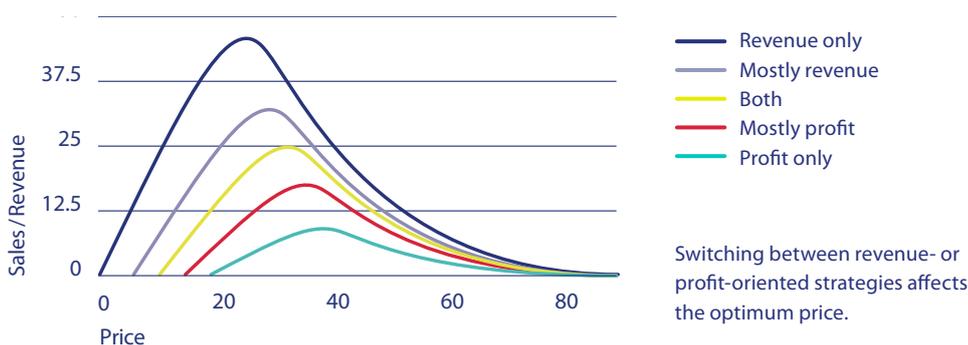
Stock-based pricing strategy

The stock-based pricing strategy can be used for products at the end of the product life cycle. It considers available stocks, price elasticity and forecasted demand until the end of the season or product life cycle. Using this information, Price Optimization sets the optimal price so that prices price reductions happen as slowly as possible, while still ensuring that no leftover stocks remain at the end of the season.

This strategy performs profit-oriented markdown management and works best for highly seasonal products that go out of fashion or products that become obsolete due to technology life cycles.

Price strategy mix

The price strategy mix strikes a balance between revenue and profit optimization. Depending on their individual goals, customers can define the percentage by which revenue should be optimized over profit.

It is possible to set a mix that accurately reflects the company strategy. If the customer focus is growth, setting the target to revenue will yield optimum results. If profit maximization is required, setting the goal to profit optimization is the ideal approach. But even in growth-oriented companies, the cost of capital can be a concern, so that mixing strategies may prove to be most useful.

Legend:
- Revenue only
- Mostly revenue
- Both
- Mostly profit
- Profit only

Switching between revenue- or profit-oriented strategies affects the optimum price.

Pricing rules

Blue Yonder Price Optimization allows pricing rules to be set. All product prices within these rule sets are optimized according to their underlying constraints. Pricing rules allow constraints to be set on an individual product, between products (for instance, the smaller size of a product should always cost less than the larger size) and even across entire product groups (for instance, to enforce an average price). The optimization is performed within the boundary parameters set by pricing rules.

Pricing rules such as minimum prices, maximum prices or 99-cent pricing can be implemented to ensure consistency. However, it is important to note that enforcing too many predefined pricing rules can constrain the optimization and lead to reduced revenue or profit gains.

Marketplace monitoring

An important aspect to consider when setting prices is the price structure of the overall marketplace. Price Optimization considers competitive prices (provided either by the customer or using the built-in data service), as well as substitution and cannibalization effects between products in order to determine at what price customers decide to switch to a slightly different product, or even to a competitor.

This 360-degree view of the market ecosystem means that retailers will automatically end up with a price strategy that is competitive, but is still profitable and avoids the price wars and races to the bottom that repricing tools can cause. By monitoring the entire assortment for substitution and cannibalization effects, it also ensures that the success of one item is not at the expense of another.

Supply & Demand REST API

The API allows the delivery of master data and sales data to Blue Yonder Price Optimization using a simple and secure combination of XML and HTTPS. All uploads are checked for validity and consistency prior to booking.

Data can be delivered from any ERP or e-commerce system, database or technology platform, even homegrown solutions. Thanks to the built-in HTTPS encryption, no data can be accessed by other applications. Since Blue Yonder uses a standardized API for its solutions Replenishment Optimization and Price Optimization, existing integrations can be reused for customers who are using these products.

A/B testing

If required, Blue Yonder can perform a randomized A/B test for a customer. This involves controlling prices for only a subset of the inventory, allowing a comparison between optimized and non-optimized pricing strategies. However, this A/B test requires additional consulting and reduces the overall positive effect of Price Optimization for the duration of the trial.

Facts

Blue Yonder Price Optimization is the right choice for e-commerce retailers looking to achieve their strategic goals, such as revenue growth, profit increase, end-of-season markdown management or a combination of all three, by implementing a dynamic, market-driven pricing reflecting real customer demand.

As a software as a service, Price Optimization can be easily and securely integrated into existing e-commerce systems. To achieve optimal results, some key customer data is required.

The implementation and integration will be performed by Blue Yonder or its implementation partners. In addition, Blue Yonder provides further services and support, including strategy setting, implementation of custom rules and data quality checks.

Link Data

E-commerce master and transaction data is sent to Blue Yonder's Supply & Demand REST API via XML and HTTPS. Data exchange is secure and automated.

The following key data points are required:
- **Product data:** product name, product SKU, original product price, cost of product, product group, time range for product availability
- **Product group data:** product group, parent product group
- **Product attributes:** as key-value pairs
- **Transactions:** product, quantity, sales price, timestamp
- **Availability:** product, storefront, availability status, current price

Automated Optimization

Price proposals will be provided daily for each product and each online store it is being offered at. Proposals can be retrieved by the e-commerce system using a standardized API.

UI Views

- Data monitoring
- Data delivery protocol
- Price-change report

Service & Security

- Service desk handles questions and requests
- Data scientist consulting (optional)
- Security and user management
- Blue Yonder handles hardware and updates
- Daily backups on specially designed servers for quick recovery
- Critical components tested periodically for network vulnerability

Implementation & Integration

Blue Yonder Price Optimization is offered including an implementation project conducted by Blue Yonder's team of data scientists. This implementation project typically includes:

- Qualification
- Pre-analysis based on historical sales data
- Concept development, including integration architecture
- Implementation and integration
- A/B testing (if required)
- Model tuning
- Rollout

Would you like to optimize your pricing? Get in touch!

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