

Replenishment and Price Optimization at OTTO

How OTTO is using artificial intelligence to improve customer experience



OTTO

BlueYonder
a jda. company



How OTTO is Innovating the Customer Experience Using Artificial Intelligence

In the face of growing competitive pressure in the e-commerce sector, combined with rapidly changing fashion trends, OTTO turned to artificial intelligence (AI).

Multichannel retailer OTTO's competitive environment is characterized by low margins, high competitive pressure, as well as increasingly faster changing market conditions and customer demands. Immense data volumes, multiple influential factors and a permanent need to act in real time under great time pressure have complicated the typical decision-making processes.

Positive customer experience is at the heart of OTTO's success. To wow and retain customers, OTTO offers everything on one platform: a comprehensive selection of products at competitive prices with excellent service. OTTO's success is built on attractive offers, the highest availability of goods and quick delivery times. All of these elements are entwined, which presents a challenge. The retailer needs to strike the right balance to be successful amid fierce competition.

OTTO mastered these challenges with the support and expertise of Blue Yonder, a JDA company. AI solutions have helped the retailer improve its customer experience, increase sales, reduce stock levels and decrease returns by basing strategic decisions on data insights.

To ensure maximum effectiveness, Blue Yonder is continually developing our AI solutions in partnership with OTTO. The solutions adapt quickly and flexibly to circumstances in the increasingly changing market and make it possible for OTTO to achieve superior results within its business.

Project overview

Challenges

- Increase profitability
- Meet growing customer demands
- Better manage product line planning
- Ensure product availability and reduce delivery times
- Minimize end-of-season overhang
- Reduce rate of returns

Blue Yonder solutions*

- Demand Forecast & Replenishment
- Price Optimization

* Blue Yonder Demand Forecast & Replenishment is now JDA Luminate Demand Edge. Blue Yonder Price Optimization is now JDA Luminate Market Price. Learn more at jda.com/luminate

Results

Demand Forecast & Replenishment

- Higher quality predictions
- Less end-of-season waste
- Shorter delivery times
- Lower shipping costs through optimized logistics
- Lower return rate

Price Optimization

- Increased sales through more demand
- Maximized profit through intelligent pricing strategies

About OTTO

OTTO, the German multichannel retailer based in Hamburg, successfully mastered the transition from classic mail-order retailer to online retailer by permanently adapting its business processes and reorienting its enterprise. Today, the online shop (www.otto.de) is the focus of the retailer's business, accounting for 90% of its annual sales of more than EUR 2.5 billion (fiscal year 2015/16). One of the main reasons for this positive development is the company's extensive range of products on offer. Alongside fashion items and technical products, OTTO also sells furniture, sports articles, shoes and toys. The online shop boasts around 6,000 brands and more than 2.2 million items, including more than 1 million goods sold by retail partners.

How OTTO Ensures Product Availability and Reduces Stock Levels

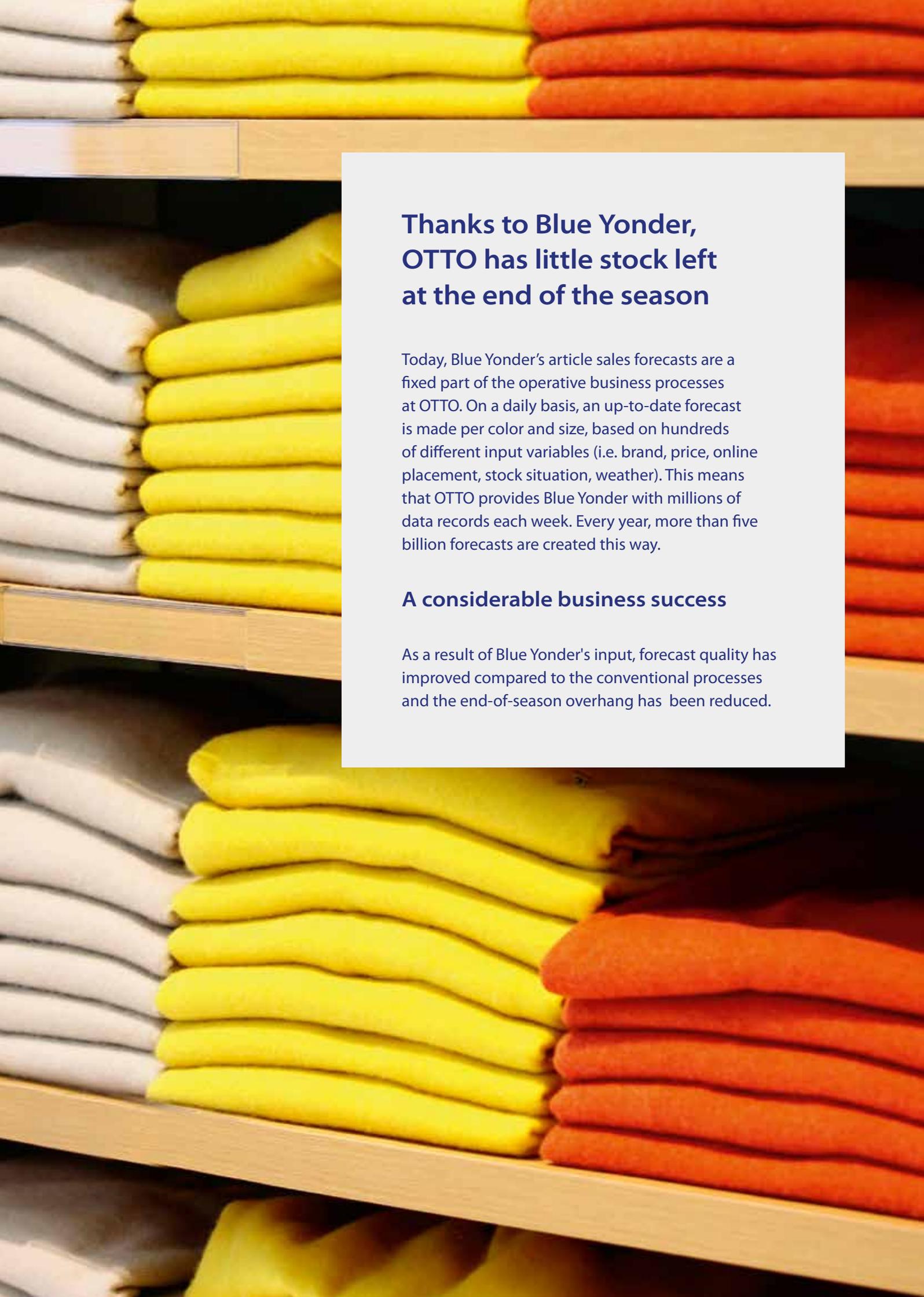
The fashion and lifestyle retail sector is a highly seasonal business. On the one hand, retailers must guarantee product availability at the appropriate point in time. On the other hand, there should be as little stock left in the warehouse as possible at the end of the season.

To manage this balancing act and ensure business success, OTTO must be able to maintain the optimal synergy between product availability and pricing for every single article in its extensive product portfolio. One of the greatest challenges in this area is predicting the sales of an article at an early stage, because the profitable purchase of goods determines overall success.

For many years, OTTO has been working closely with Blue Yonder to uphold its precise item-level sales forecasts. Blue Yonder's algorithms have been enhanced by using historical data with a wide variety of input variables. With artificial intelligence technology, the solution continuously evaluates its own forecasting quality and learns from past events.

"Through the artificial intelligence algorithm, our forecasts are constantly improving. This way, we get precise results that help us plan and control a future-oriented product range."

Mathias Stüben
Director Category Processes, OTTO



Thanks to Blue Yonder, OTTO has little stock left at the end of the season

Today, Blue Yonder's article sales forecasts are a fixed part of the operative business processes at OTTO. On a daily basis, an up-to-date forecast is made per color and size, based on hundreds of different input variables (i.e. brand, price, online placement, stock situation, weather). This means that OTTO provides Blue Yonder with millions of data records each week. Every year, more than five billion forecasts are created this way.

A considerable business success

As a result of Blue Yonder's input, forecast quality has improved compared to the conventional processes and the end-of-season overhang has been reduced.



Scope of the partner brand platform project

Assortment

Menswear, women's apparel and sportswear, electronics

Implementation of added value

Conception: 18 days
Implementation: 125 days
(without electronics)

Degree of automation

Before: 0%
With Blue Yonder: 100%

Results A/B testing

Electronics

Increase in sales and reduction of article returns within 3 months in comparison with the control group

Fashion

Improved availability increases sales and reduces return rate

How OTTO Cuts Partner Product Delivery Times

OTTO works closely with renowned business partners in its online shop. Through the partner brand platform, the retailer showcases a selection of popular brands. Each shop within otto.de is individually managed by the partners, who work together with OTTO to determine what items are offered. OTTO then handles the shipping and delivery to the customer.

On the back of excellent results with Blue Yonder's sales forecasting capabilities, OTTO tested our Demand Forecast & Replenishment for merchandise planning in its central distribution center with a selection of brand partners. The results were so convincing that OTTO has since automated almost all merchandise planning for partner products with Blue Yonder's artificial intelligence solution.

The challenge: long delivery times and costly returns

When Blue Yonder first started working with OTTO, the delivery time of its partner products was anywhere from five and seven days, whereas it only takes one to two days to deliver OTTO's own brands. This extra time was due to the more complicated logistics process. When a customer made an order, otto.de would forward the sale to the partner. The desired article was first sent to OTTO's distribution center and from there it was sent to the customer. But today's shoppers are used to short delivery times and react negatively to longer waiting periods. They are also more likely to return items, and less likely to shop with a retailer again if they are forced to wait longer than expected.

The solution: Blue Yonder Demand Forecast & Replenishment

In order to reduce delivery times, OTTO required precise forecasts for the flow of goods on its brand platform, for electronics products as well as fashion brands. OTTO needed to know which articles would sell, how frequently, and in what sizes and amounts. This would enable the retailer to order the right articles in advance based on the forecasts and thus expedite delivery to the customer.

Blue Yonder Demand Forecast & Replenishment delivers highly accurate and automated ordering decisions daily to OTTO in order to achieve this. For the sales forecasts on brand products, our solution evaluates around 3 billion transactions including sales, prices and inventories and provides machine-driven ordering decisions in advance.

The results: shorter delivery times and satisfied customers

With accurate decisions from Blue Yonder, OTTO succeeded in reducing the delivery period for partner products down to 1-2 days from 5-7 without risking leftover supply. More and more frequently, goods are not even stored in the warehouse, but delivered directly to the customer. With this faster delivery, customer satisfaction has improved and so has the demand for products.

Additional benefits: return rates reduced and costs saved in shipping

Blue Yonder's artificial intelligence solution has positive effects in other areas of OTTO's business as well. With automated planning decisions, the number of returns has been minimized, because orders correspond with the customer demand being forecasted. For both OTTO and the customer, shipment patterns have also improved, as more products can be combined into one shipment. The customer is happy, because individual items arrive together and OTTO saves on shipping costs as well as improving its carbon footprint.

"The use of Blue Yonder proves itself in practice. From our perspective, the forecasts are accurate when we sell out of articles ordered from our partners within 30 days. With Blue Yonder, we accomplish this at a rate of 90%. For us, this is outstanding value."

Mathias Stüben
Director Category Processes, OTTO



OTTO distribution center for brand partners: merchandise planning with Blue Yonder Demand Forecast & Replenishment

Challenge

- Up to 200 different vendors
- About 6,000 brands
- Roughly 1 million SKUs

Solution

- Leverage 3 billion transactions' worth of historical data points
- Forecast multiple daily rolling time horizons
- Roll-out within 6 months

Result

- Significantly optimized product availability
- Goods ordered are sold within 30 days at a rate of 90%
- Increased sales and revenues
- Reduced return rate



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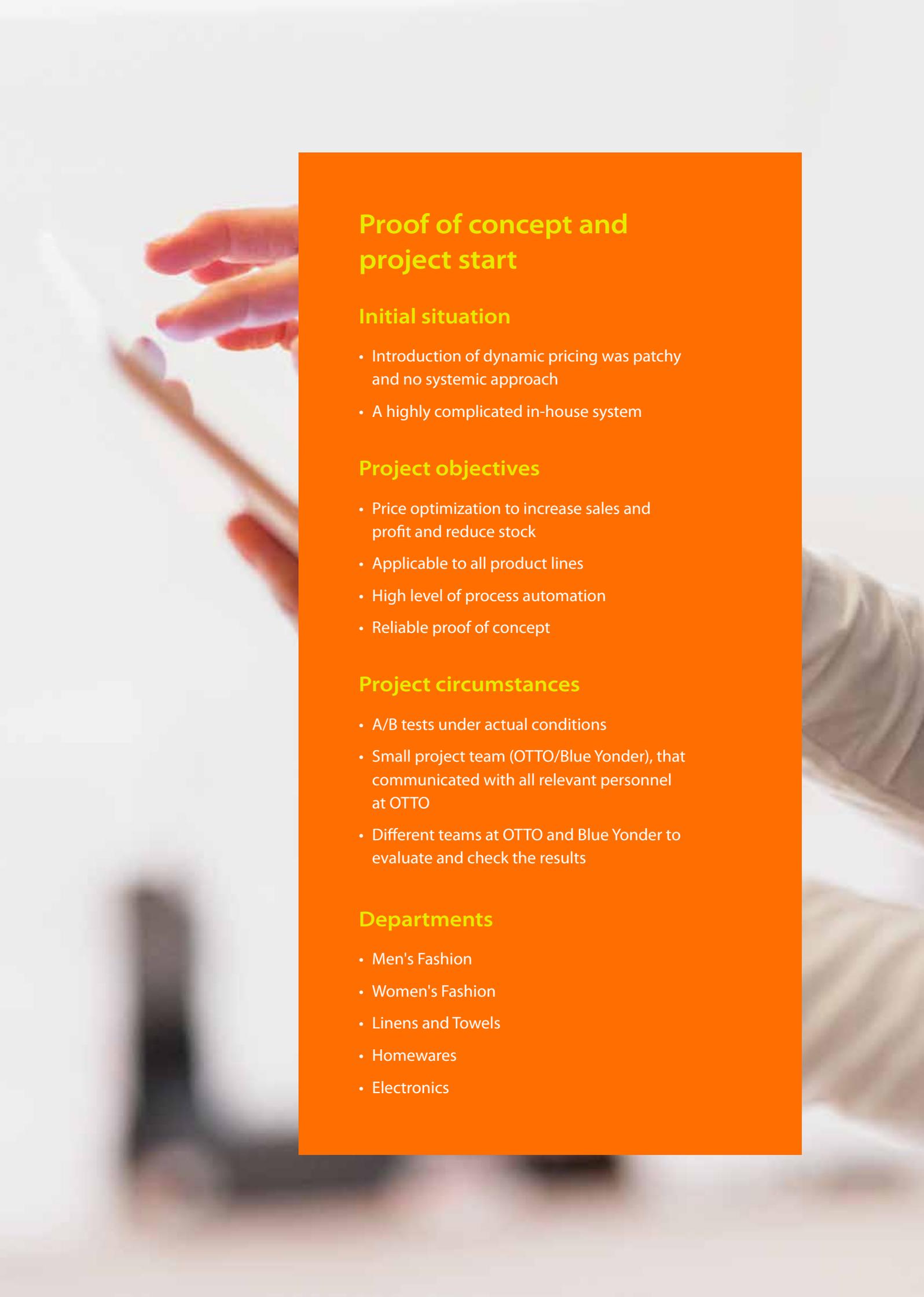
How OTTO Attains the Optimal Price

Today, the requirements of intelligent price management are much greater than during the era of the catalog. The customer always expects a good price, and price transparency for brand name products. The basic question to ask for each item is: what price is the customer willing to pay?

The optimal price for a product depends on many influencing factors that can vary on a daily basis: availability, display, competition, season, weekday, time, weather, platform, competitors' prices and many more. At any point in the product life cycle, there is an optimum price for a product. The real challenge is when to set it. The right price at the right time increases customer satisfaction, leads to more sales and higher profit in the end. Experience shows, also, that the rate of returns decreases with optimal pricing.



Delivering profitability relies on a retailer's ability to actively keep up with the market's changing dynamics, while still delivering a cost advantage to the customer.



Proof of concept and project start

Initial situation

- Introduction of dynamic pricing was patchy and no systemic approach
- A highly complicated in-house system

Project objectives

- Price optimization to increase sales and profit and reduce stock
- Applicable to all product lines
- High level of process automation
- Reliable proof of concept

Project circumstances

- A/B tests under actual conditions
- Small project team (OTTO/Blue Yonder), that communicated with all relevant personnel at OTTO
- Different teams at OTTO and Blue Yonder to evaluate and check the results

Departments

- Men's Fashion
- Women's Fashion
- Linens and Towels
- Homewares
- Electronics

Prices based on Blue Yonder algorithms: data-driven, automated and self-learning

Blue Yonder Price Optimization (now JDA Luminate Market Price), supports OTTO in successfully finding the “ideal” price. Our artificial intelligence solution for online retail examines and measures the connection between price changes and demand patterns. Based on a number of price-quantity pairs, it can pinpoint the price elasticity for every item. Specific knowledge of the price elasticity makes it possible to find the ideal price for a product according to the chosen price strategy. Based on the results, Blue Yonder Price Optimization automatically determines sales- or profit-increasing prices throughout the entire lifecycle of each and every product, for every season.

Increasing sales and revenue

In a six-month pilot project in menswear, OTTO tested how it could automate pricing with the help of Blue Yonder’s solution, in order to increase sales and revenue. The results were impressive: Blue Yonder was clearly in a position to significantly optimize sales, revenue, and overall performance. Through its automated pricing decisions, Blue Yonder delivered the best results, increasing sales, revenues and optimizing the process.

Blue Yonder Price Optimization has since been rolled out across the men's and women's fashion departments, as well as across homewares and electronics. In the latter categories, Blue Yonder Price Optimization factored in competitor pricing for the first time. The result was not only an increase in sales, but also a decrease in product returns.

Pricing in the past

Price tests on- and offline



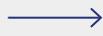
Complex, cost-intensive process



Only applicable for a certain product selection



Individual test



Pricing with Blue Yonder

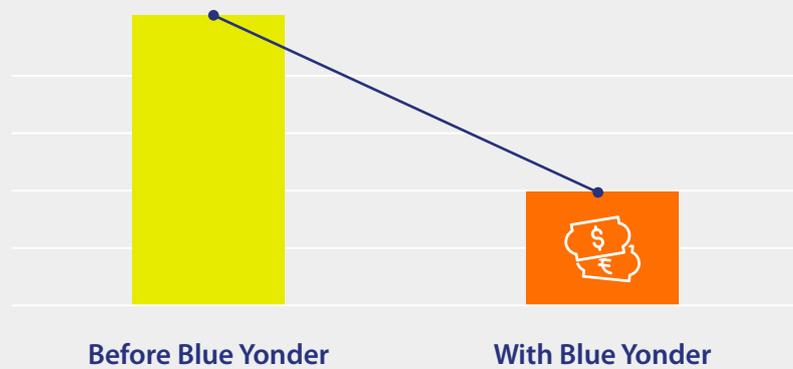
Measurement of price elasticity

Automated, data-based process

Applicable for all products

Continual price optimization based on artificial intelligence algorithms

Price Optimization resulted in a significant decrease in overstock





About Blue Yonder

Blue Yonder, a JDA company, is a leading provider of artificial intelligence (AI) and machine learning (ML) solutions that enable retailers, consumer products and other companies to intelligently transform their operations and make more profitable, automated business decisions that deliver higher profits and optimized customer experiences.

With AI/ML learnings embedded into their core supply chain and merchandising processes, companies can respond quicker to dynamic market conditions and customer preferences, resulting in increased revenues and margins.

Developed by one of the largest teams of PhD-level data scientists dedicated to retail and the supply chain, Blue Yonder's AI/ML solutions deliver more than 600 million intelligent, automated decisions a day.

Blue Yonder was founded in 2008 in Karlsruhe, Germany, by former CERN scientist Professor Michael Feindt and acquired by JDA Software in 2018. The company has received numerous awards, including the Experton Big Data Leader Award 2016, the BT Retail Week Technology Award, the IGD Award 2017 for Supply Chain Innovation.

Blue Yonder provides its solutions through Microsoft Azure and was named one of Microsoft's retail partners of the year in 2018.

Blue Yonder

Best decisions, delivered daily

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