

# Replenishment Optimization at OTTO

How OTTO impresses customers and increases sales at the same time



# How OTTO Improved the Customer Experience by Using Predictive Applications

To withstand growing competitive pressure in e-commerce and to keep up with rapidly changing trends in the fashion industry, OTTO is using the latest in innovative technology.

Multichannel retailer OTTO's competitive environment is characterized by low margins, high competitive pressure, and increasingly faster changing market conditions and customer demands. Immense data volumes, a multiplicity of influential factors and a permanent need to act in real time under great time pressure are factors that typify decision-making processes.

Positive customer experience and satisfied customers are at the heart of OTTO. To wow and retain customers, OTTO offers everything on one platform: a comprehensive selection of products at competitive prices with excellent service. The success factors here include the highest level of goods availability and short delivery periods. All these elements are entwined, which presents a challenge. Only those who can deal with this will survive and be successful against the fierce competition.

OTTO mastered these challenges together with Blue Yonder. Cloud-based predictive applications not only help the retailer improve customer experience, but also increase sales, reduce stock levels and decrease returns by basing strategic decisions on data.

Blue Yonder develops its predictive applications with OTTO on an ongoing basis to be more practically oriented. The solutions adapt quickly and flexibly to circumstances in the increasingly changing market and make it possible for OTTO to achieve superior results with its business.

## Project overview

### Customer

OTTO, online retailer for fashion and lifestyle

### Challenges

- Increase profitability
- Meet ever growing customer demands
- Better manage product line planning
- Ensure product availability and reduce delivery times
- Vary prices based on corporate strategy
- Reduce rate of returns

### Blue Yonder solutions in action

- Sales Forecasts
- Replenishment Optimization
- Price Optimization

## Results

### Price optimization

- Increase in sales
- Profit maximization

### Sales forecasts

- Improving the forecast quality: **by 40%**
- Reducing remaining stock: **by 20%**

### Returns

- Reduce the rate of returns

### About OTTO

OTTO, the German multi-channel retailer based in Hamburg, successfully mastered the transition from classical mail-order retailer to online retailer by permanently adapting its business processes and by successfully reorienting its enterprise. Today, the online shop

([www.otto.de](http://www.otto.de)) is the focus of the retailer's business accounting for 90% of its annual sales which amount to over 2.5 billion Euros (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 has a total of about 6,000 brands and more than 2.1 million article items.

# 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 for the entire season. 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 at the same time, OTTO must be able to maintain precisely the optimal synergy between product availability and pricing for every single article in its extensive product portfolio. One of the greatest challenges in this is predicting the probable sales of an article at an early stage, because the profitable purchase of goods determines overall success. The most important task is to continuously ascertain the correct amounts.

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

» The quality of our forecasts is constantly improving because we use machine learning algorithms. We get precise results that help us plan and manage our selection of products for the future. «

**Michael Sinn**  
Director Category Support, OTTO

With **Blue Yonder**, OTTO reduced remaining stock by **20%**

Today, Blue Yonder's article item sales forecasts are a fixed part of the operative business processes at OTTO. On a daily basis for each article, an up-to-date forecast is made per color and size and 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 individual forecasts are created in this way.

**A considerable business success:**  
The forecast quality improved by up to 40% per article compared to the conventional process and overstock was reduced by 20% at the end of the season!

Daily input variables	100s
Weekly evaluated datasets	100s of millions
Yearly individual forecasts	several billions
Improving the forecast quality	40%
Reducing remaining stock	20%

# How OTTO Attains the Optimal Price

## What price is the customer willing to pay?

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 is close to 100%. 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: day of the week, season, time of day, weather, channel and device, competitor's prices and much more.

At any point in the product life cycle, there is an optimum price for a product. The challenge is to set it in relation to time. The right price at the right time increases customer satisfaction, leads to more sales and higher profit in the end. Experience shows, in fact, that the rate of returns even decreases with optimal pricing.

## The basis for pricing: determining price elasticity

Today, Blue Yonder Price Optimization supports OTTO in successfully finding the "ideal" price. Blue Yonder Price Optimization for online retail examines and measures the connection between price changes and demand patterns. Based on a number of price-quantity pairs, Blue Yonder's solution can pinpoint the price elasticity for every article item. Even for products that are difficult to sell, it can define the precise price elasticity by using cluster and collective algorithms and evaluating descriptive characteristics. 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's price optimization solution automatically determines sales or profit increasing prices for the entire season.

## Pricing strategy: increasing sales and revenue on menswear

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. With impressive results: Blue Yonder was clearly in a position to significantly optimize sales, revenue, and overall results. Based on this, the solution was also implemented in women's apparel, and successive rollout is underway on the entire product range.



## Proof of concept and project start

### Initial situation

- Introduction of dynamic pricing was patchy, without a systemic approach
- OTTO only had one system to handle a great deal of complexity

### 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 communicates with all relevant personnel at OTTO
- Different teams at OTTO and Blue Yonder to evaluate and check the results

In total, the pilot project ran quickly and in a practice-oriented manner and proved, in less than five months,

that using Price Optimization was worth it for OTTO:

<b>Conception</b>	20 days
<b>Implementation</b>	30 days
<b>Test phase</b>	60 days
<b>Evaluation</b>	30 days



## Pilot project results in fashion

### 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 machine learning algorithms

## Improvements with Price Optimization\*

	2014 Sales €	2015 Sales €
<b>Fashion</b>		
Menswear	+	+
Women's apparel	+	+
<b>Hard goods</b>		
Multimedia		+

\* Results A/B test

## Significant reduction in return rate with Price Optimization



The exceptionally good results of the proof of concept lead to OTTO rolling out the Price Optimization solution to other menswear and women's apparel product lines. In addition, OTTO started another proof of concept in electronics (multimedia), which also produced excellent results. This one introduced competitor prices in the price algorithm for the first time. Not only did sales increase, but with attractive competitive prices the rate of returns decreased significantly.

In 2016, other product lines will use the solution as well.

# Outlook

OTTO sees other possible uses for Blue Yonder's predictive applications in collaboration with brands on otto.de, for example. OTTO works closely with well-known brand partners, using otto.de as the platform. They determine the offer together. The partner then manages the product lines. In 2015, they carried out a test project with Blue Yonder, in progress for several months. The test clearly showed

that delivery times have an effect on the rate of returns, and that OTTO can shorten delivery periods with precise projections of demand and storage in advance. This leads to greater customer satisfaction and therefore less returns. OTTO will be using Blue Yonder Replenishment Optimization to manage replenishment for several brand partners in 2016.

# Blue Yonder

Blue Yonder is the leading provider of cloud-based predictive applications for retail.

Everyday, we deliver decisions to our customers that boost revenues, increase margins and enable rapid responses to changing market dynamics.

Our pricing, replenishment and targeting solutions are driven by proprietary machine learning algorithms, developed by the largest team of doctorate-level data scientists in retail.

We are backed by leading private equity firm Warburg Pincus and the Otto Group, and in 2014 established the Data Science Academy to provide businesses with relevant data science know-how for retail.

Blue Yonder has been awarded, among many others, the Gartner Cool Vendor Award 2015, the Experton Big Data Leader Award 2016 and the BT Retail Week Technology Award.

[blue-yonder.com](http://blue-yonder.com)

Founded in 2008 in Karlsruhe, Germany by ex-CERN scientist Professor Michael Feindt, Blue Yonder now operates in both Europe and the United States.



Would you also like to improve your sales, margins and the customer experience by making data-driven decisions?

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