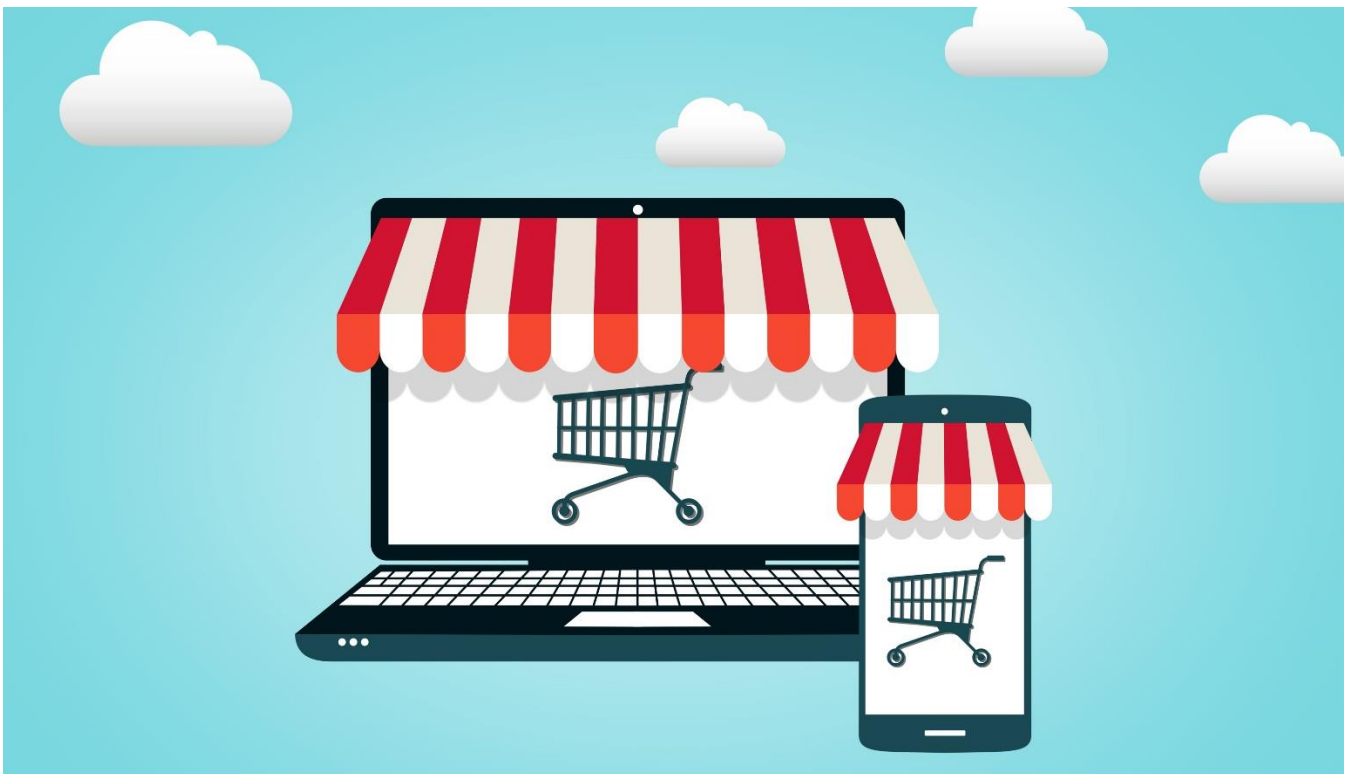


## PREDICTIVE ANALYTICS AND MACHINE LEARNING IN ACTION FOR E-COMMERCE INVENTORY MANAGEMENT

Rapid growth is commonly associated with e-commerce. However, fast and commercially viable growth in e-commerce requires a strong technological backend and the mastery of the supply chain: the technical and physical to support flexibility in downstream operations, and the process automation to manage millions of SKUs in the portfolio. Furthermore, supply chain processes and technology need to recognize the unconventional structure of an e-commerce company, as it handles massive number of SKUs, sells them 24/7/365, has the flexibility to change prices many times a day, fed by many diverse data sources including a customer's propensity to buy, real-time signals from channel competitors, conversion (e.g., web searches, click rates, conversion), fulfills millions of individual orders and offers frictionless return from the comfort of your home. That means, conventional retailer solutions simply do not fit the bill.



This case study provides solid evidence for process automation and analytics technology, including machine learning, to improve several competing KPIs across the entire order-to-cash cycle of a major e-commerce company.

### THE PROBLEM

Since its founding in 1998, our client kept its leader position in e-commerce, currently with 2M+ products in over 30 categories listed at the e-commerce site at any point and serving 50M+ visitors a month. 18 months ago, in preparation for rapid growth in product portfolio and the introduction of the marketplace services, our client chose Solvoyo as its solution partner to address specific supply chain issues:

- An outdated purchasing process that is too dependent on Excel spreadsheets and personal biases
- Excess workload on planners due to lack of decision automation

- Higher nonperforming stock than the industry benchmark
- Lack of universal view of data to drive fast decision-making
- Availability problems leading into customer complaints

Our client management understood that fast growth would put a huge pressure on operations and profitability if these issues were left unresolved. Manual and reactionary processes supported by heroic execution that fueled the company's early growth could potentially be a barrier to reach the goal of becoming a world-class e-commerce company.

## THE SOLUTION

Our client's initial objective was to get rid of Excel as the primary planning tool and establish a common planning process and performance metrics across all its product categories. Furthermore, the vast amount of data (e.g., basket transactions, web searches, click rates, conversion, competitor prices, marketplace signals) in disparate systems in varying formats were virtually useless as separate reports that ended up in the planners' e-mail box but never used effectively.

Within 3 months of the project start, Solvoyo established a common planning process and KPIs, gathered disparate data in electronic format under one data model and automated the purchasing process through short-term sales forecasts for over a million SKUs and inventory optimization for the 50K SKUs kept in the DC at the time. Initial deployment helped 3 pioneering product categories with immediate measurable results. Within the next 6 months, after small refinements to accommodate the special needs of each additional category, Solvoyo platform went live for the entire company. Our client now employs the Solvoyo platform to support its world-class process and the analytics tools to support its decisions:









- ☑ Common procurement processes supported by automation and machine-learning
- ☑ Automated forecasting and inventory optimization, supplementing historical sales data with web searches, click rates and conversion
- ☑ Predictive analytics for massive number of promotions and different demand lift categories
- ☑ Consideration of marketplace signals and prices
- ☑ Exception-based plans based on business rules
- ☑ Portfolio management support (SKU addition/retirement)
- ☑ Automated purchase order creation with vendor constraints
- ☑ Diagnostic analytics for aging stock and actionable recommendations in line with budget targets

- ☑ Automated parameter adjustment for forecasting, inventory optimization and purchasing
- ☑ KPI tracking and reporting common across all categories

Solvoyo’s solution also includes gap closure recommendations to help our clients meet budget goals, mid-term forecasting for proactive business actions, dynamic routing of last mile delivery orders, dynamic replenishment of satellite cross-docks and incorporation of unstructured data into short-term procurement decisions.

## VALUE PROPOSITION

The KPIs have been measured and archived since the go-live date for each category. In short, our client achieved significant overall improvements in availability, first-day fulfillment and unproductive stock:

Total Revenue	Availability	First-day Fulfillment Rate	Increase in # of stocked SKUs	Decrease in # of inventory per SKU	Unproductive Inventory
					

## OUR CLIENT AT A GLANCE

E-commerce leader selling actively in Eastern Europe, Middle East, Africa and Russia:

- 94%** year-over-year growth in 2017
- 30** product categories
- 2M+** SKUs listed for sale at any point in time
- 50M+** visitors a week
- 10M+** shipment a month
- 20K** purchase orders to the pool of 1,250 vendors

## ABOUT SOLVOYO

Solvoyo is an international enterprise software company based in Boston, MA, and Istanbul, Turkey. We bring your business significant value using innovative planning, analytics and supply chain optimization techniques that improve efficiency and productivity of your planning and execution processes, and enable informed decision making around the right product, right channel, right time and right price to meet your customer’s needs. Our end-to-end integrated solution that addresses all aspects of your supply chain with cloud-native technology and machine-learning algorithms is highly scalable and adapts seamlessly to the changing needs of your business.

We make it easy for you to get immediate benefits -- our Software-as-a-Service based Elevation platform is implemented very quickly. When combined with our pay-as-you-go business model, you get an extremely short time-to-benefit and at a minimum up-front cost.

We have documented cases where our technology has solved complex, high-volume problems that competitors could not match in speed, price or performance!

You can obtain more information from our website: [www.solvoyo.com](http://www.solvoyo.com)