crunch
ADVANCED ANALYTICS & AI

AI-driven Replenishment

**Prevent out-of-stock and overstock situations through automated replenishment.
And immediately improve your customer experience and revenue.**

Situation

The client is a fast-growing webshop selling consumer goods, ambitious to become the European leader in its market. **Rapid growth implies the need for cost-effective tooling and a scalable strategy.** Therefore, the client chose wisely to invest substantially in data and advanced analytics. One of its core investments focussed on the replenishment process. It allows the retailer to improve and automate key processes, resulting in a better quality of service, increased revenue and reduced costs.

Challenges

The replenishment process used to be a **manual, highly labour-intensive task, leading to suboptimal results.** First, data needed to be gathered from multiple systems and inserted into a large Excel file. This took a lot of time and was prone to human error. Secondly, an estimate of the appropriate inventory level was based on a rudimentary sales and promotion impact forecast, leaving substantial room for improvement. Thirdly, supply orders were overestimated to compensate suppliers' minimum order quantities. This led to an ordering approach driven by gut-feeling. Forth, once the purchase orders were defined, these needed to be manually inputted in the ERP system, leading to even more lost time and errors.

Solutions

In close collaboration with the client, we built a system that assists the client in the replenishments process by using advanced data processing and analytics to improve and automate as much of the process as possible.

One data source

First, we enabled the **automated extraction of all required data** from the relevant sources and consolidated the data in one place. This significantly reduced time spent on a tedious task and prevented mistakes.

Sales forecasting algorithm

Second, we built a predictive algorithm – driven by machine learning – that accurately forecasts how many items of each product will be sold over the coming weeks. It takes into account historic sales, seasonality and impact of promotions. The procurement manager is provided with a **dashboard, that visually suggests the required number of items of each product that need to be purchased**, taking into account actual stock levels, actual open orders and lead times.

One-click suggested ordering

Third, the system uses the aforementioned forecast and takes into account supplier constraints to suggest specific order quantities for each supplier. **The procurement manager merely needs to accept or adjust.** The final decision on quantities is then automatically pushed to the ERP system and sent to suppliers. Even the complexity of dependencies like 'packs', multiple operators and inter warehouse transfers are fully taken into account by the system

Results

- **Client substantially reduced out-of-stock situations resulting in improved customer experience and increased revenue.**
- **Client substantially reduced the amount of work required to manage the replenishment process, from 3 x 3 days to 3 x 0.5 days a week.**
- **Client substantially reduced overstock, resulting in decreased costs.**