

## DEMAND FORECASTING

### Case description:

Agullo's Fashion Retail (AFR) is a company that designs, distributes and sells clothing for kids. It has been relatively successful in the past years where its products have been very popular in middle and upper class families. Its chic style has made top design affordable for this segment of the population. When AFR was growing, high sales and high margins disguised operational inefficiencies and focus was on growing the brand, developing innovative products and enlarging the distribution network.

Over the years, new competitors emerged, imitating AFR strategy with their own fashion style. Some of them were competing also on price, with similar quality, but lower prices. As a result, AFR sales started to suffer. To get things back on track, 2 years ago, AFR decided to extend its collection of products to more every-day clothing and to decrease prices. Sales improved again, but margins were never the same. These lower margins made inefficiencies more damaging.

AFR has a large catalogue of products for boys and girls and changes completely the collection of products every season. Products are also different for each age group, to make it more appealing to kids of different ages. All in all, it manages a portfolio of about 1,000 different products every season. This has been a key aspect of its strategy to drive audiences to its stores and to position itself as an innovative player. Products are characterized in multiple dimensions (color, fabric, style, color, among many other attributes). However it is extremely difficult to match products one on one from one year to the next, as there is a lot of flexibility and freedom in the design of new products.

Given the large product availability in the market, both within AFR and its competitors, and the changing trends in the fashion market, it has become very difficult to anticipate the future success of each product, one on one. As a result, top sellers run out of stock very quickly creating a huge opportunity cost and bottom sellers remain until the end of the season, leaving unsold stocks even with an aggressive discount policy in the clearance period.

Historically, production has been outsourced and takes place in China where production costs are much lower than in Spain. AFR purchases high volumes from one partner there. Lead times are high, though, especially due to transportation, mostly done by ship. All production in China is done when no real (end consumer) sales have occurred, later producing the gap between goods produced and good sold. To solve early out-of-stocks of top-selling products, AFR has developed two other production locations, one in Turkey and another one in Portugal. Turkey has lower lead times than China and higher unit costs. It can provide help for very early stockouts. Similarly, Portugal has even lower lead times but yet even higher unit costs. It can provide with early stockouts. Historically, AFR has been triggering production when the product was out of stock in most stores, producing moderate additional quantities as the product arrival would be close to the

clearance period in most occasions. As a result of all this, production in Turkey and Portugal has been very limited, to less than 10%. All three countries offer the same quality standards.

AFR owns and manages a network of about 100 stores across Spain where approximately 70% of their sales occur. These stores are relatively big and offer most of AFR's product assortment. It distributes all products from its central warehouse to all stores. Distribution takes place through a transportation company that charges per volume and weight, making transportation cost completely variable on products moved. All decisions about assortment, replenishment and discounts in the clearance period are made in the central headquarters.

Additionally AFR also sells its products through independent multi-brand stores. These stores receive the catalogue for next season 3 to 6 months in advance and they make orders, to be received at the beginning of the season. They also can make subsequent orders over the season, but suffer from the same out-of-stock problem as they tend to sell well the same items.

AFR has quite an advanced operational system in which all data is updated daily. All stores have an RFID system that tracks available products. AFR has data on all sales, movements, stocks for the past 10 years. It can manage maximum granularity when picking products for an individual delivery, but it performs better when sending boxes of 5 products with the same SKU.

Its current replenishment delivers goods once a week to all stores and works in the following way: its target per-product stocks at each store is 3 weeks of today's weekly sales. It sends the amount necessary to increase current stocks to the target stock. If the stock in the central warehouse is not enough to cover all stores, it distributes the available stock proportionally across all stores. This system performs well in non-busy periods and when there is sufficient stock at the central warehouse. It fails to anticipate occasional booms (e.g. when a celebrity kid appears in a picture with AFR's clothes), promotional periods (e.g. midseason sales, black Friday, TV campaigns, etc.) and other high sales periods. Of course, it cannot solve the lack of stock for top sellers. AFR would like to put in place a new supply chain system that allows to solve the shortcomings of the current system, building on the current assets in place (data, production partners and its operational system).

The proposal should contain the following elements:

- 1) background: relevant summary of context for the proposal (leave out irrelevant factors)
- 2) goals: target KPI to improve and how analytics can drive that change
- 3) data: data sources and volumes needed (must-have and nice-to-have)
- 4) methodology: high level description of method used and how data will be treated (variables to include, etc.)
- 5) decision: how analytical results are used to make decisions (different from today)
- 6) expected results: expected variation in target KPIs and factors driving the business case
- 7) benefits: other qualitative improvements
- 8) calendar: time and resources needed

Focus should be on how to transform business questions in methodologies and then back to business operations. You can make assumptions if the case is not explicit about a relevant factor.