Retail Replenishment

Problem Statement for Retail Replenishment:

1. The problem of properly allocating several different products in the stores network is one of the crucial processes in the Retail Industry. This means trying to meet market demand and at the same time reducing logistics costs.

2. Second, the products can experience large unexplained drops or spikes in demand for one period. If the calculations do not have a way to filter those periods, they can cause a large swing in the overall average. A large change in the average would lead to a dramatic change in the future order quantity.

3. The lead time variance indicates the amount of deviation buyers experience with order delivery. This number represents the reliability of the lead time forecast.

4. The order cycle refers to the amount of time expected between receipt. Large inventory needs to be maintained to keep track of the order cycle.

5. How much customer demand should be supported by replenishment inventory and safety stock.

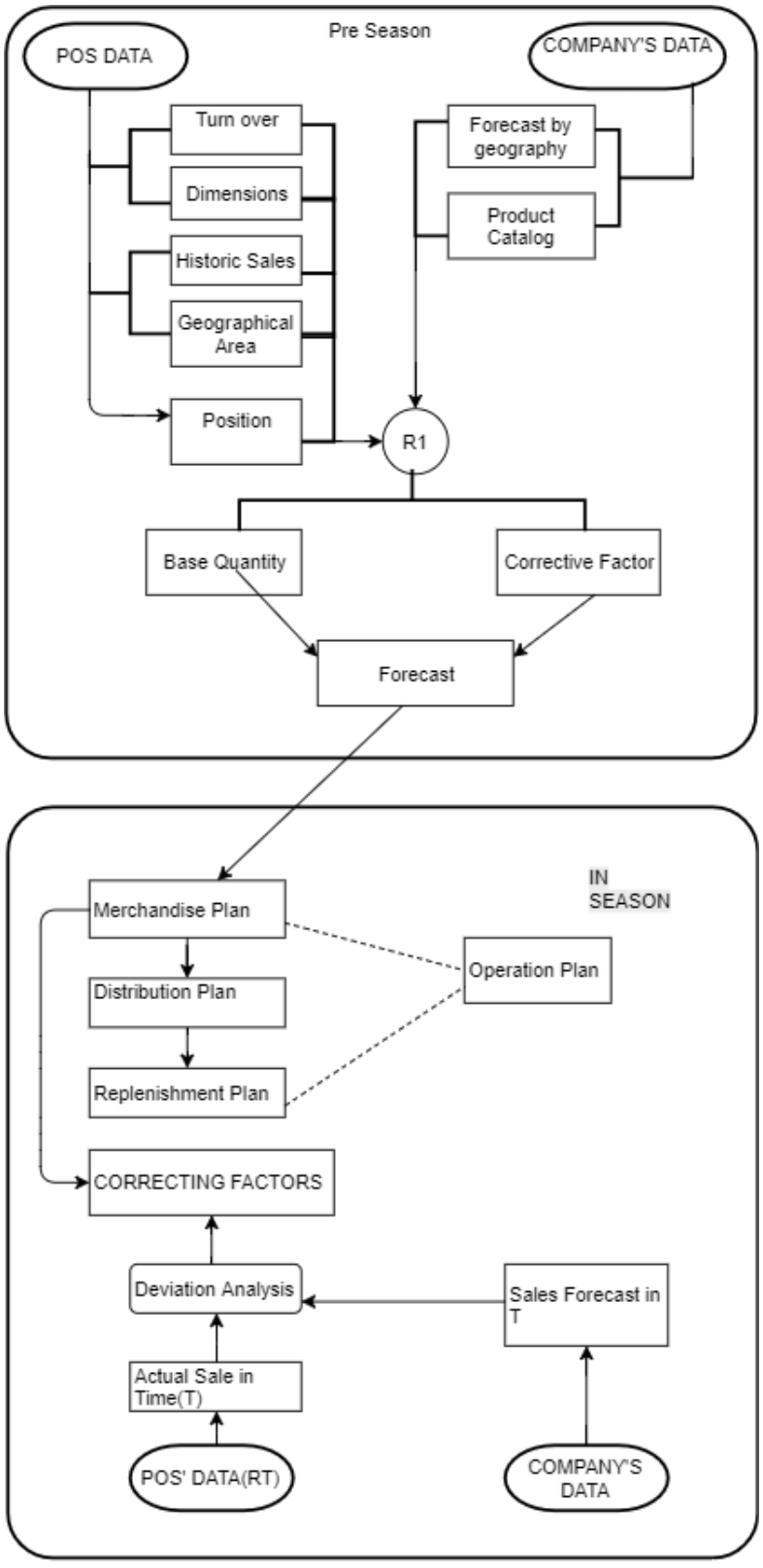
Assumed Algorithm:

Work flow refers to a planning process that is divided into:

Merchandise planning: Pre Season forecasting process, of medium-long term, aimed at the definition of commercial plans of purchasing and distribution of items to POS.

Replenishment planning: In Season process, of short term, aimed at the definition of item's net requirements in stores, to replenish by sending consignment lots from logistic warehouses to the network.

The model consists of two macro blocks: the first, called Pre Season, accepts input of all historic data about sales of the closest ended time bucket and business data about products and forecasts for the period under review. This step provides as output the "Merchandise Plan" (MP) which contains all sales data expected to be achieved in the coming period (disaggregated by point of sale and product code). Each input factor, through well-defined computation rules, will have a different weight on the quantities defined by the MP. The second step of the model, called In Season, has the purpose of monitoring, in real time, actual sales results, to allow the "Replenishment Plan" (RP) elaboration, which are periodic supply plans recalibrated, work in progress, compared to initial estimates, to evaluate possible overestimation and underestimation resulting from the MP.



T: Time in range