**Literature Survey**

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| **Team ID:** | PNT2022TMID17554 |
| **Project Name:** | **DemandEst - AI powered Food Demand Forecaster** |
| **Team Leader:** | SUBASH CHANDRA BOSE .M |
| **Team members**: | SUBASH.G  SENKER  SOUNDAR |

**Paper I**

### DemandEst - AI powered Food Demand Forecaster

**Abstract :**

## **The construction of the demand forecast**

**The projection of demand is often built through historical sales data, growth prospects for the sector or even targets set to engage sales of a certain product.**

**When considering only these means of forecasting, without considering the specific growth of each SKU (Stock Keeping Unit), companies can fall into the traps of subjectivity or generalism.**

**The expansion of a sector does not result in a growth of the same magnitude for the entire product mix. For example, does a projected annual growth of 6% for the food sector necessarily imply equivalent growth for the noble meat segment?**

**Possibly not, as this market niche may be more resilient or sensitive than the food sector, or it may even suffer from recent changes in consumer habits.**

**Advantages:**

* **As an alternative to the traditional demand forecast format, there are opportunities to use market and AI data to assist managers in the S&OP (Sales & Operations Planning) process, as well as in the S&OE (Sales and Operations Execution) process.**
* **During the S&OP process, demand forecasting supported by AI facilitates the work of the marketing and sales areas, as well as reducing uncertainty and increasing predictability for the supply chain areas.**
* **In the S&OE process, AI can be used to identify new opportunities and to correct deviations from what was planned.**
* **In addition to the technical attributes that AI can add to the process, the data base reduces points of conflict between teams, reduces historical disputes between preferences for SKUs and makes the process more transparent between areas.**

**Drawbacks:**

**Adversities like these directly impact the companies’ final results, as they result in loss of market share, increase in costs or low optimization in the dilution of fixed costs, growth in the loss of perishable products, frustration of employees in relation to the goals and mainly break in the confidence of recurring customers who depend on supply for their operations.**

**Paper II**

### AI powered Food Demand Forecaster

**Abstract:**

**The food industry is situated in a context of highly perishable products with the following characteristics:**

* **High inventory turnover;**
* **Parallel supply in different locations;**
* **Large number of Skus, points of production and points of sale;**
* **Verticalized supply chain;**
* **Non-linearity in data patterns;**
* **Seasonality.**

**Advantages:**

* **Inventory optimization among Distribution Centers (CDs);**
* **Reduction of idle stocks;**
* **Decrease in disruptions that cause loss of market share due to substitute products;**
* **Direct reduction in losses with perishability (FIFO).**

**Drawbacks:**

* **Technological innovations in forecasting, especially with the use of Artificial Intelligence algorithms, are increasingly present in the operation of companies and their benefits are increasingly evident in industry publications**.