



# **PURCHASE PLAN FOR HEALTHCARE SUPPLY CHAIN**

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# GOALS AND OBJECTIVES

## Objective n° 1

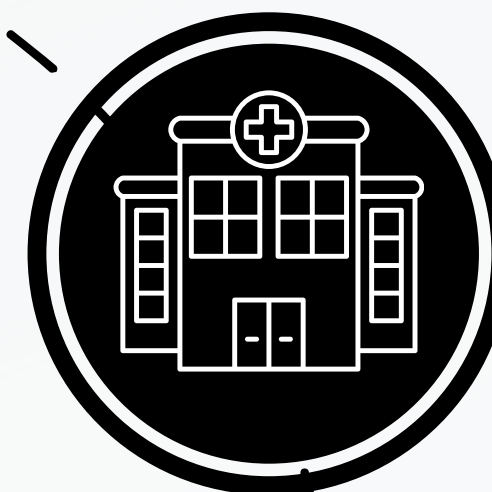
Optimize the **transportation** of the supplies in order to **minimize** the CO<sub>2</sub> emissions and **improve the sustainability** of the supply chain.

## Objective n° 2

**Predict** the needs of the hospital to ensure that it does not run out of stock at any time.

## Objective n° 3

**Centralize** the provisioning of public hospitals to **prevent oversupplying** and **enhance the coordination** of material between the hospitals.



# IDEA



Based on the hospital's storage capacity, come up with a **purchase plan** ordering several months in advance to **prevent stockouts** and **optimize transportation** by doing a total of **6** purchases per year.



**Predict** the **price** and needed **quantity** of each product for each purchase of the upcoming year, based on previous years' data.

## Approaches used:

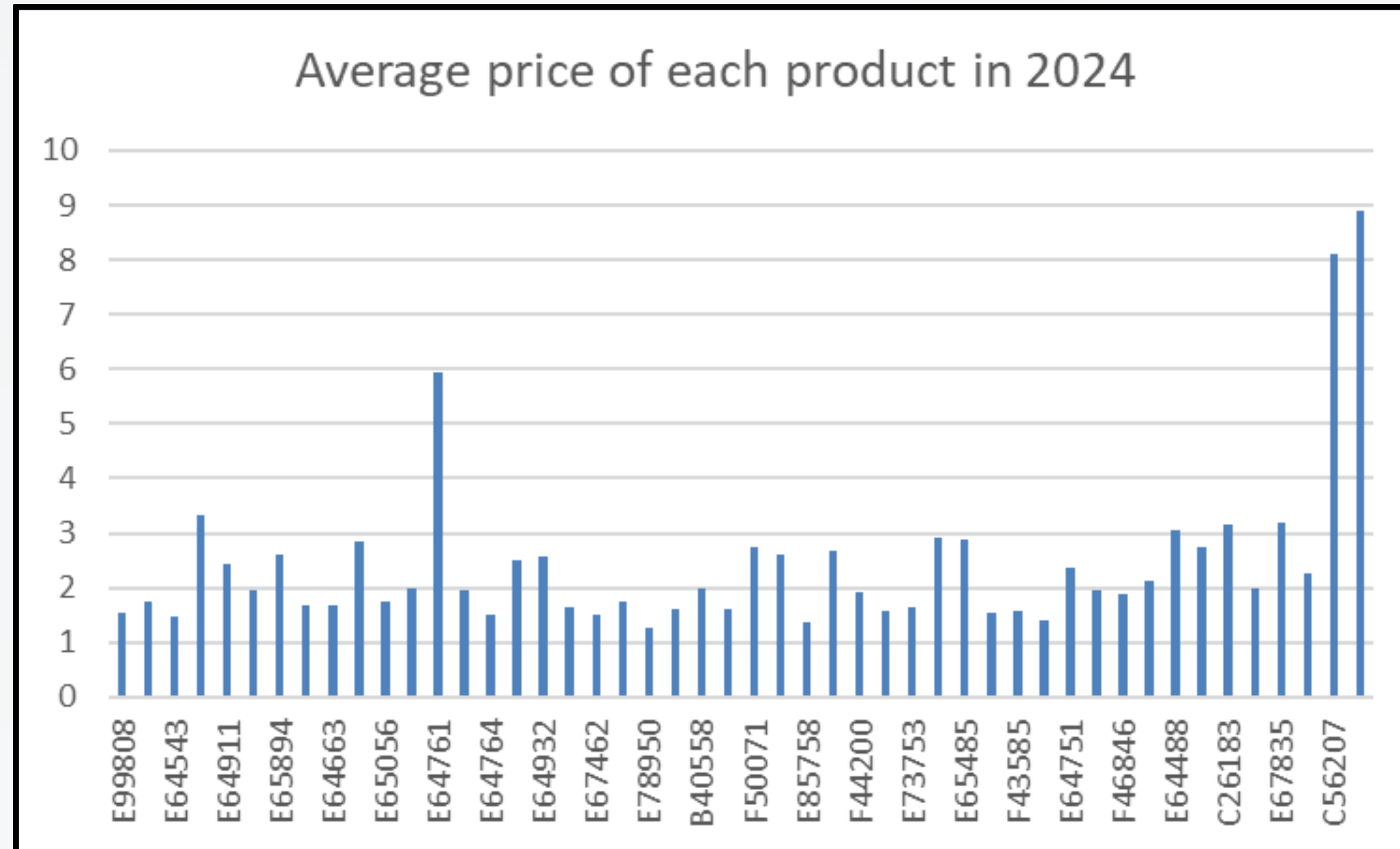
- Data visualization
- Segmentation
- Forecasting (Prediction Formula)

# PREDICTION FORMULA

$$p_n = p_{n-1} \cdot \left( \prod_{j=1}^{n-1} \left( \frac{p_{n-j}}{p_{n-j-1}} \right)^{\tau^{j-1}} \right)^{\frac{1}{\sum_{j=1}^{n-1} \tau^{j-1}}}$$

**Weighted geometric mean**

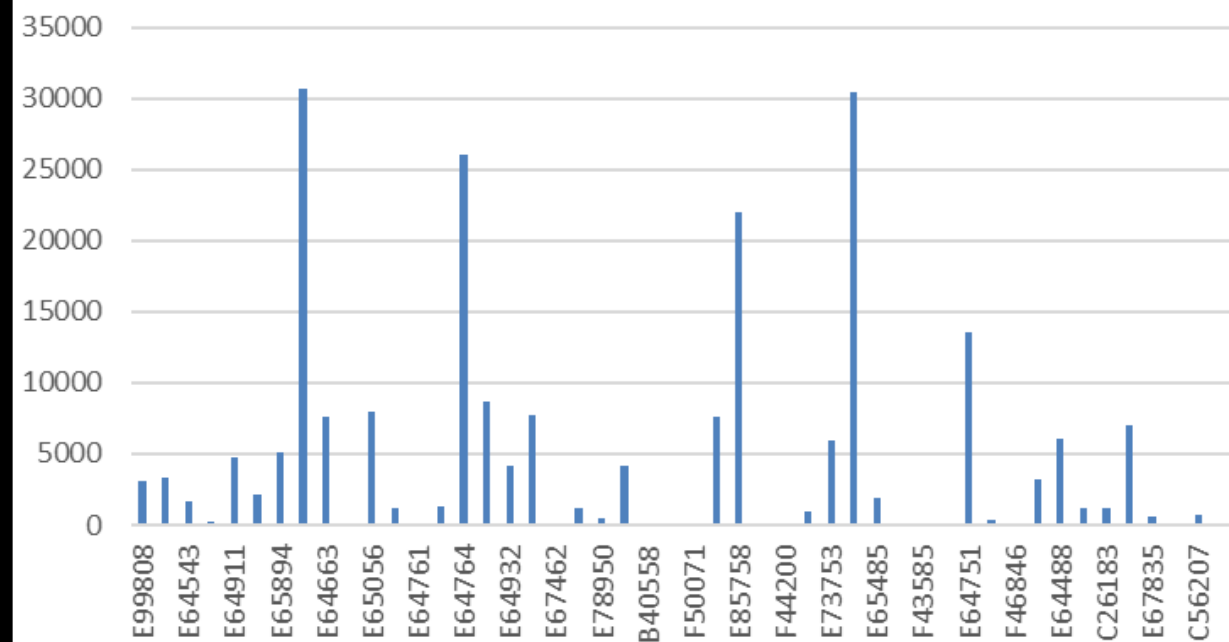
# PREDICTION OF PRICES



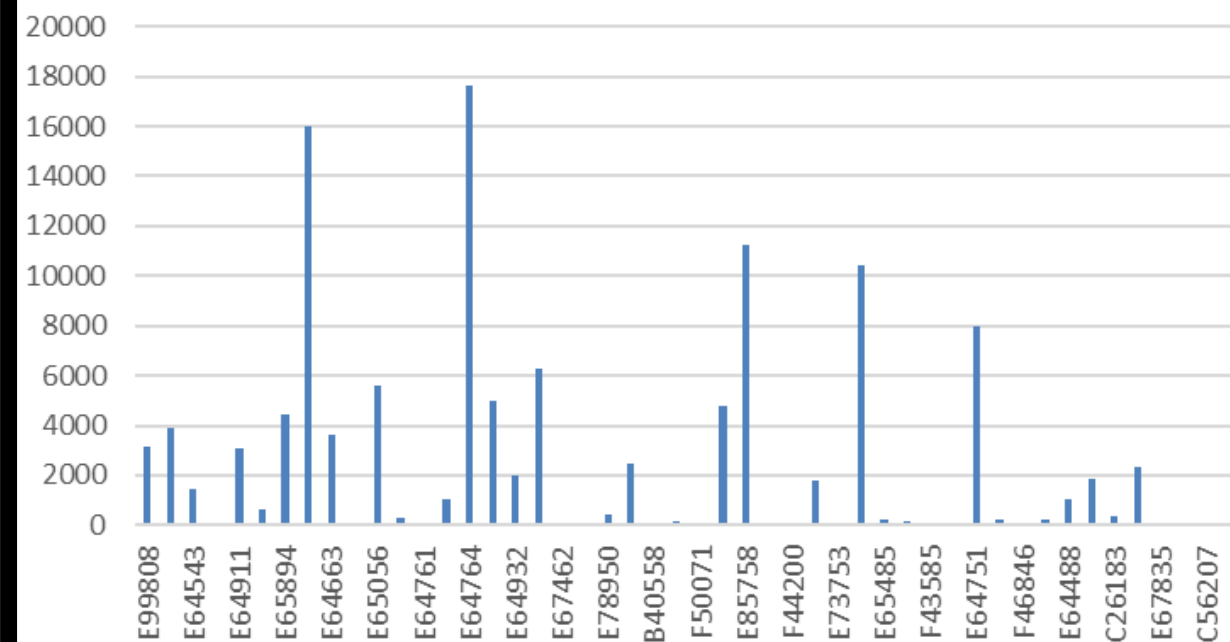


# PURCHASE PLAN

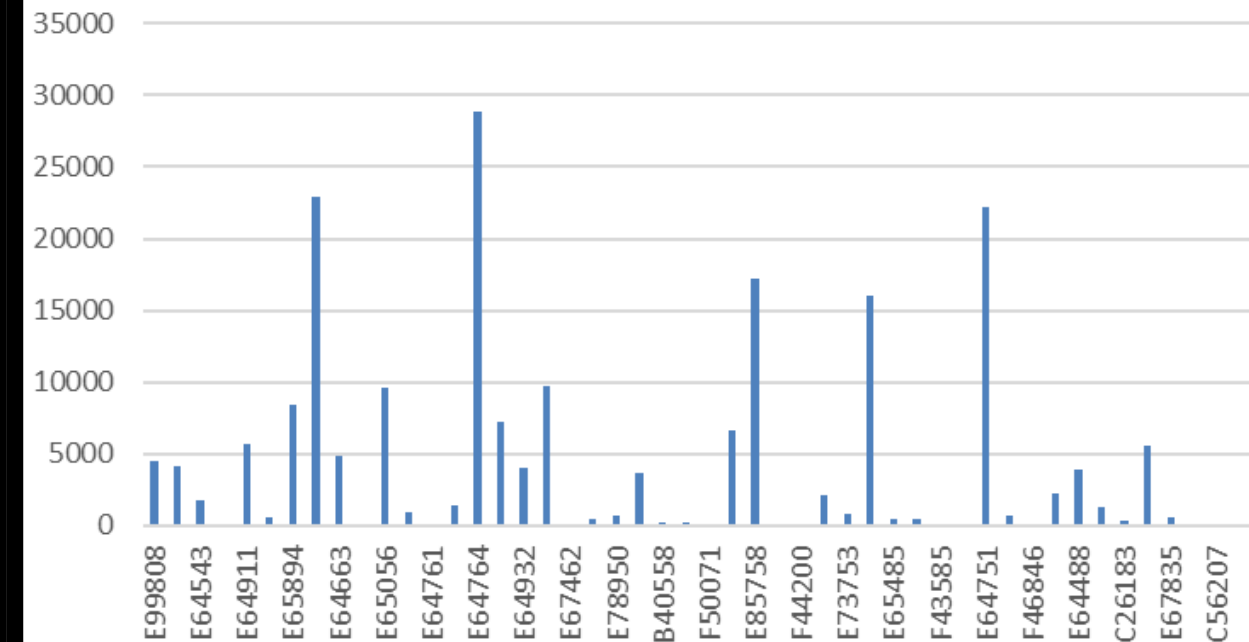
Purchase plan - January and February



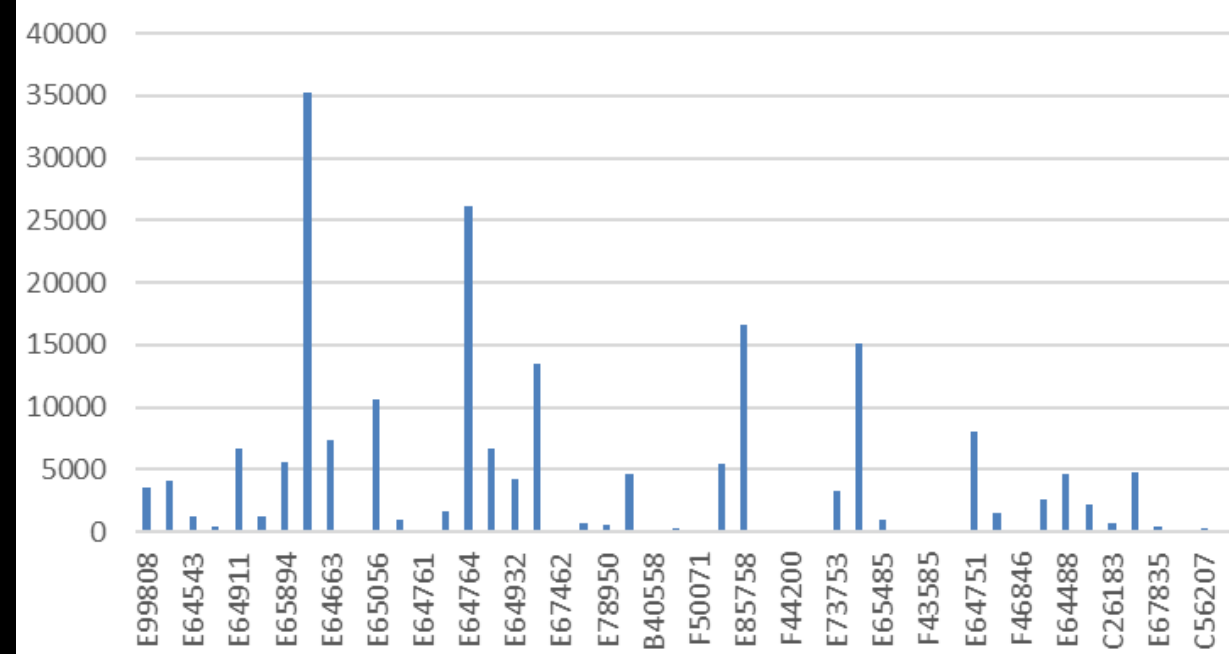
Purchase plan - March and April



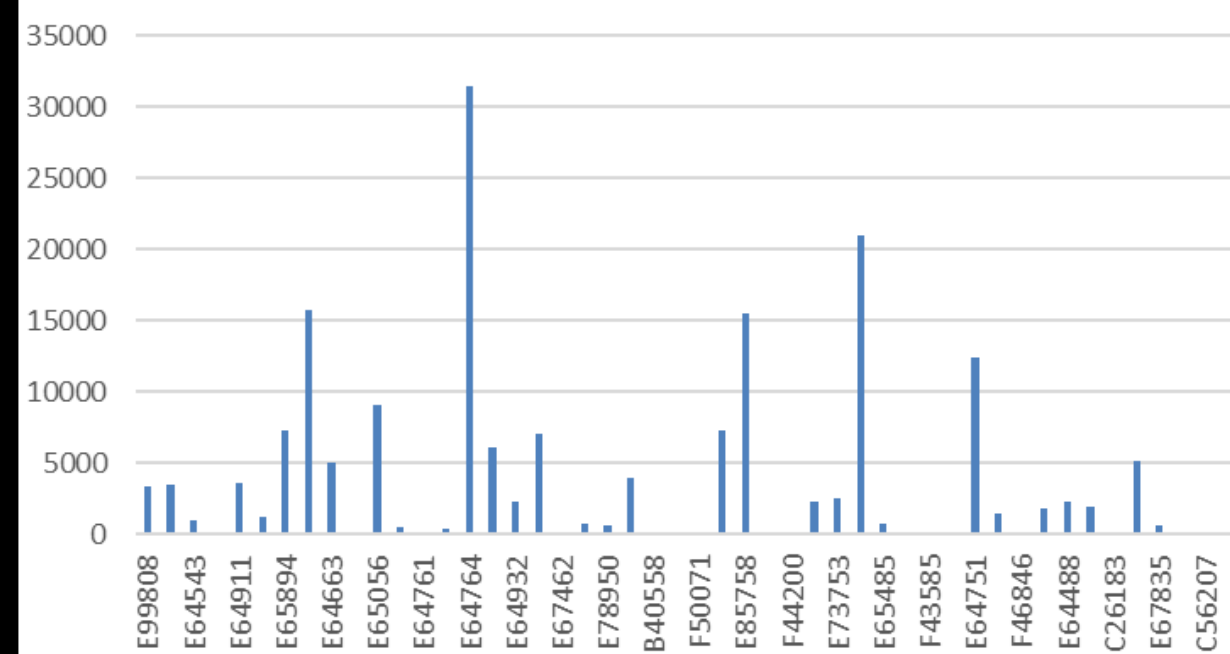
Purchase plan - May and June



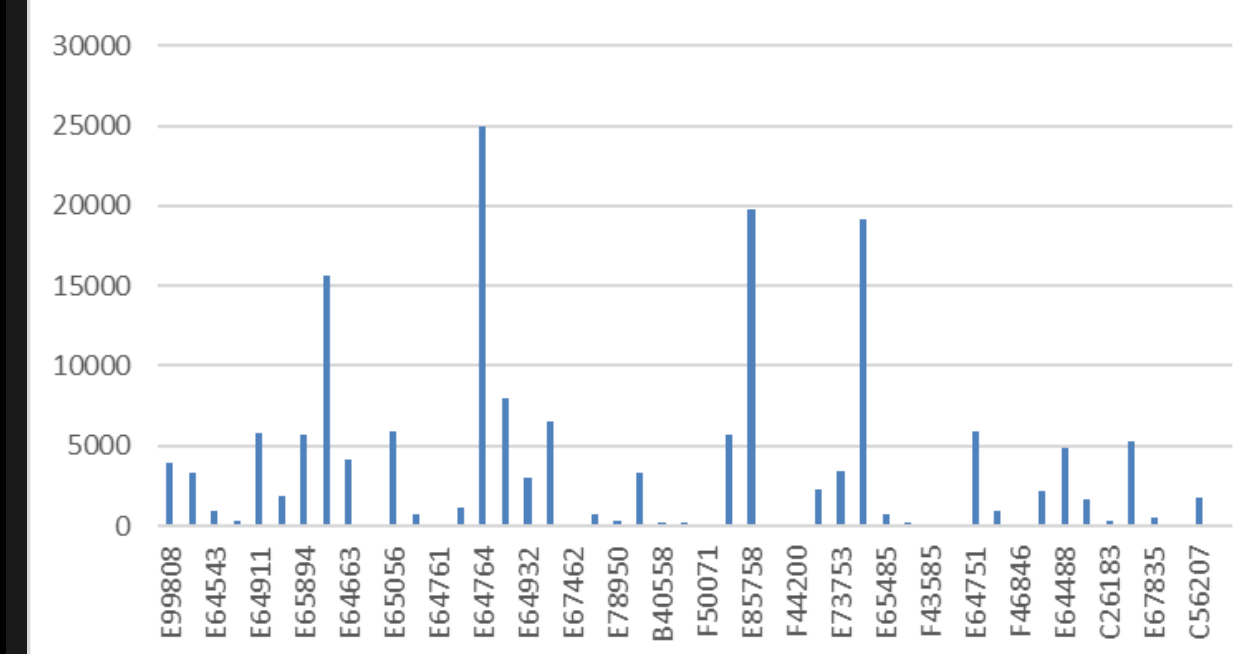
Purchase plan - July and August



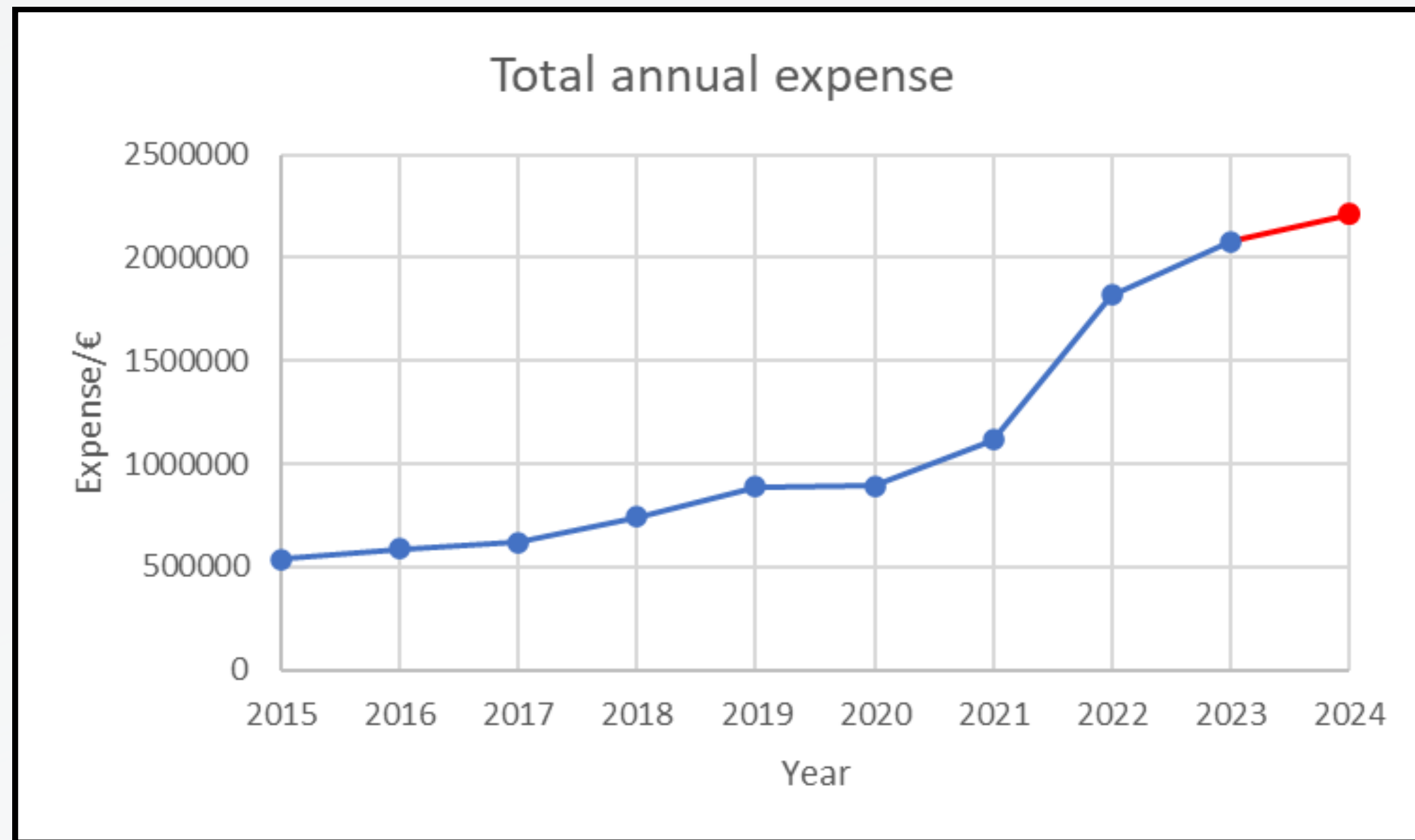
Purchase plan - September and October



Purchase plan - November and December



# OVERALL COST



**2.208.290€**



# ENVIRONMENTAL IMPACT

- Our plan reduces the number of purchases by **99.65%**, which allows for fewer **larger transport vehicles**, which pollute less than a greater number of **small vehicles** destined for small purchases.
- Furthermore, large-scale purchases allow for more **optimized routes** to be organized with **fewer suppliers**. It also allows for more efficient **inventory management** to avoid urgent shipments, which are less sustainable.
- Overall, our purchasing planning not only reduces **transportation-related CO2 emissions**, but also allows for greater planning to improve the sustainability of **packaging** and **waste management** of each shipment.



# THANKS FOR WATCHING

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