# Forecast in business

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Forecast is a key tool for helping business with their planning and decisions. The ability of predict what the future might look like is key for plan, avoid excess waste, and make strategic decisions among others

When aiming to predict the future, a great methodology is to use time series analysis
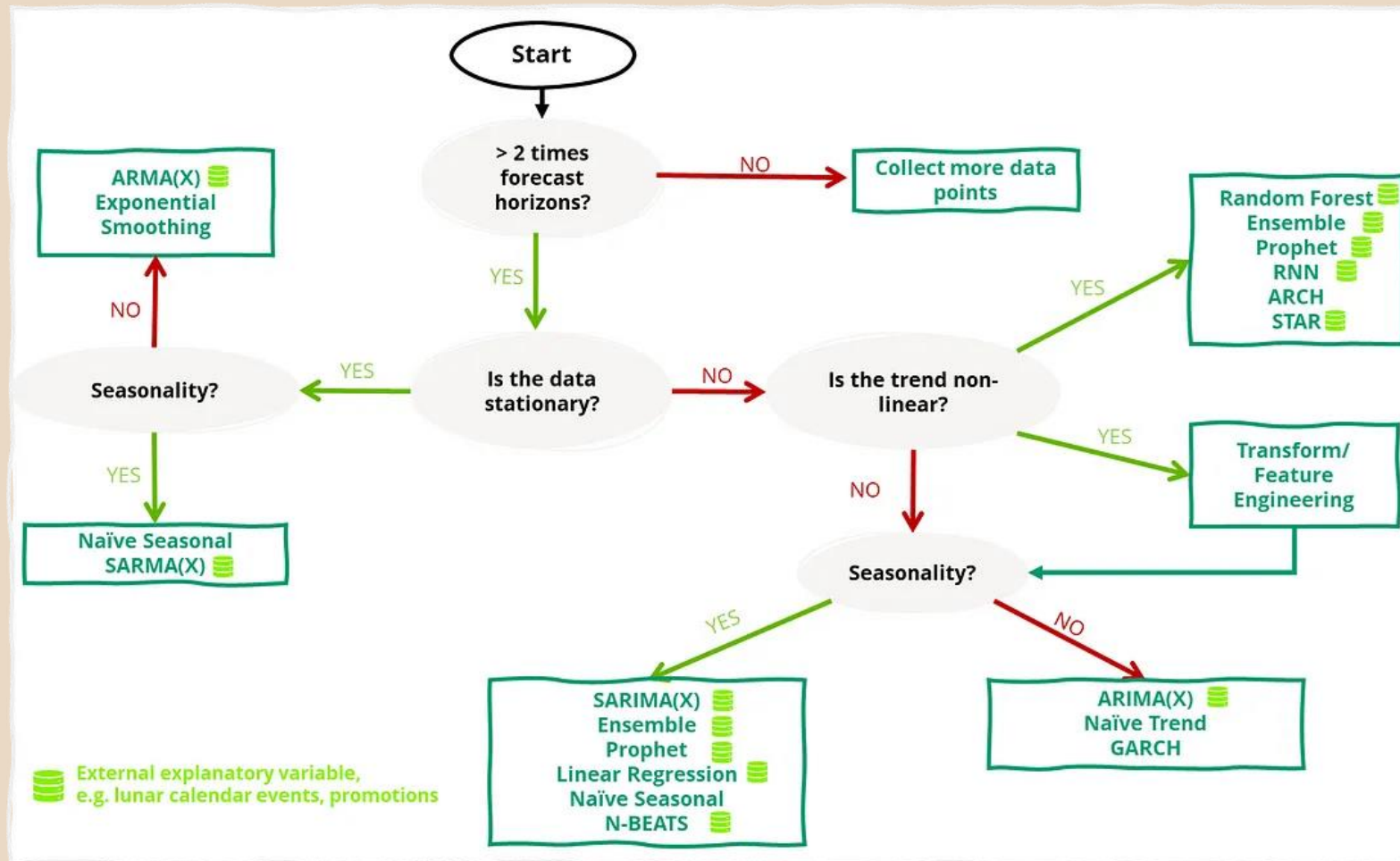
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# Problem exploration

- What is the main problem that needed to be solved
- How long into the future I would like to predict
- What would be the granularity of my predictions
- Is it possible to aggregate data, given some hierarchy?

# Data exploration

- How much data do we have
- Are there repeating patterns within the data (seasonality)
- Are there outliers in the data
- What kind of new features can we create from this data?
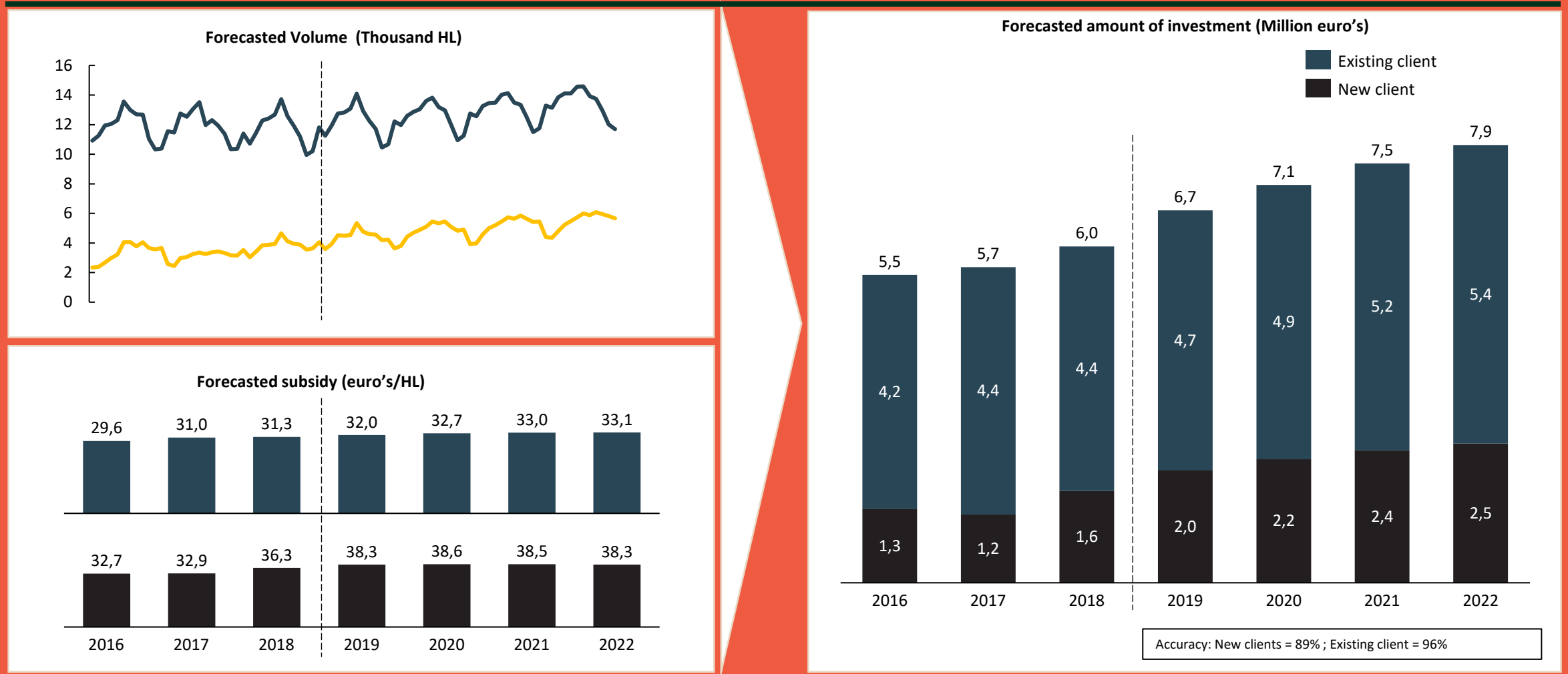- Are there external factors that can we use?

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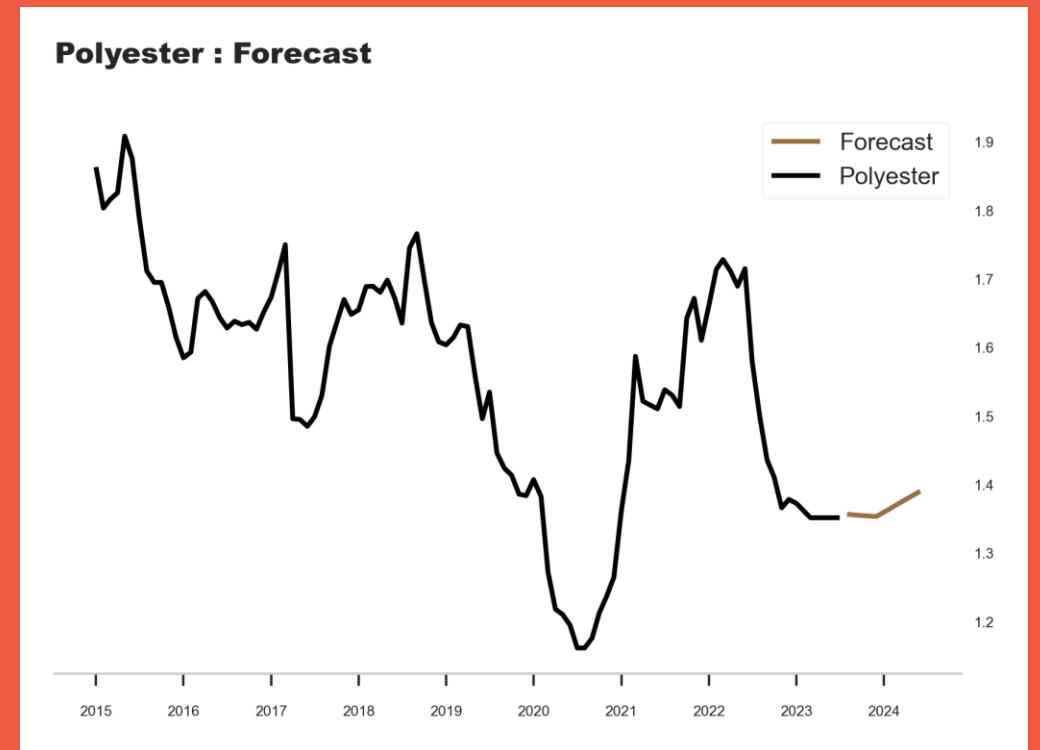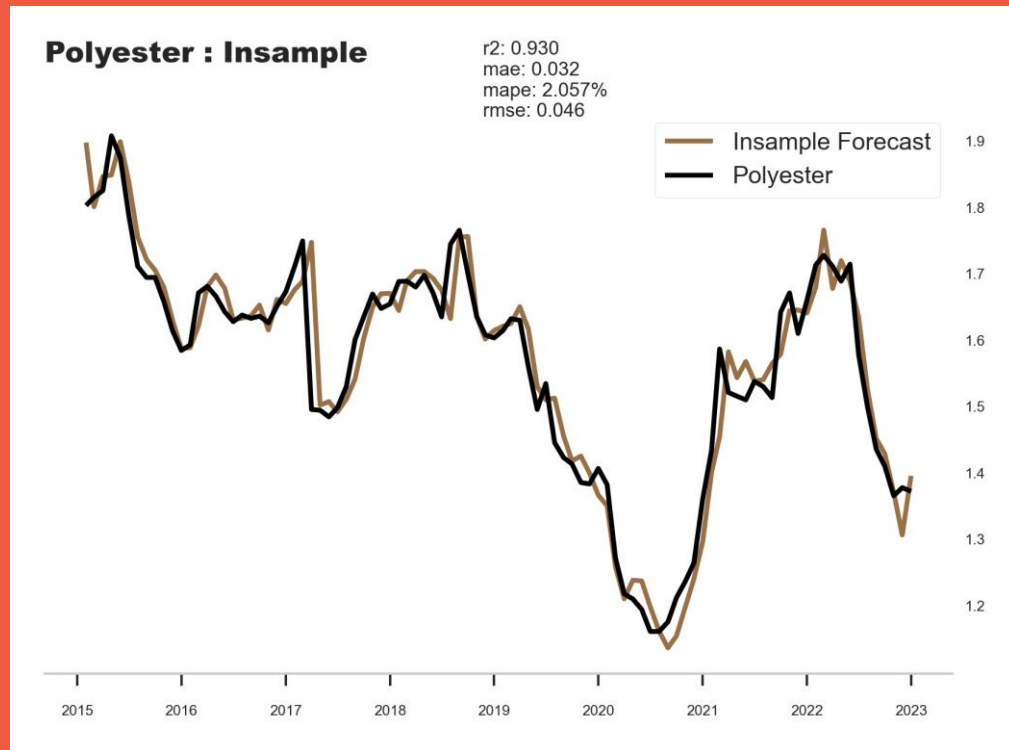# How to choose the right forecast for your problem?



How to Choose a Forecasting Model | by Gosia Komor | Towards Data Science
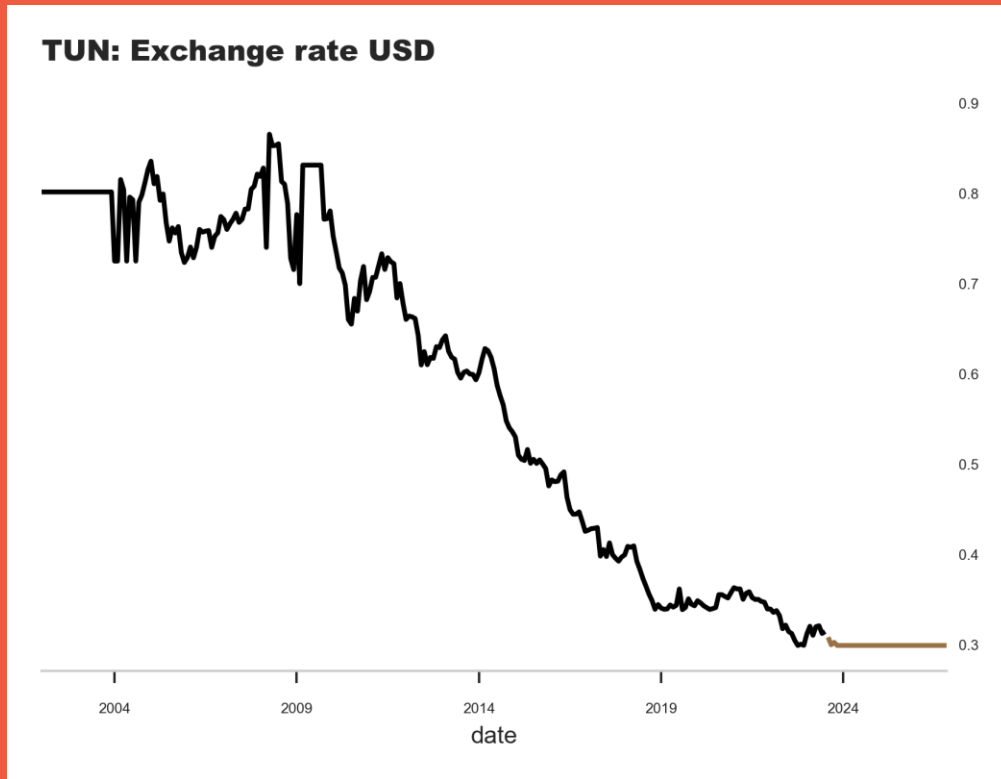
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# Real life examples..
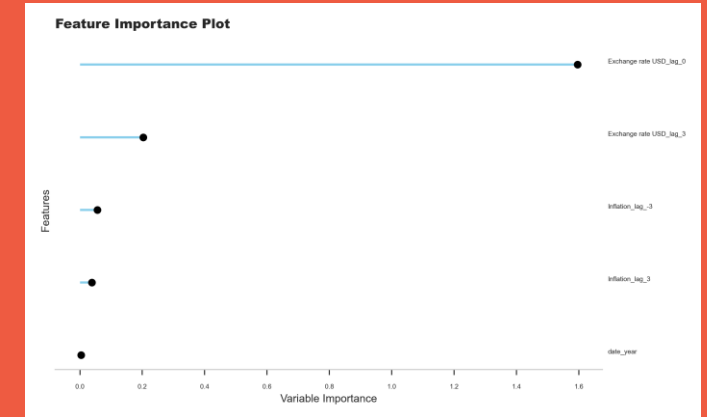
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# Combining different forecasts into one

**Forecasted Volume (Thousand HL)**



**Forecasted subsidy (euro's/HL)**

| | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|---|---|
| Existing | 29,6 | 31,0 | 31,3 | 32,0 | 32,7 | 33,0 | 33,1 |
| New | 32,7 | 32,9 | 36,3 | 38,3 | 38,6 | 38,5 | 38,3 |

**Forecasted amount of investment (Million euro's)**

Existing client
New client

| | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|---|---|
| Total | 5,5 | 5,7 | 6,0 | 6,7 | 7,1 | 7,5 | 7,9 |
| Existing client | 4,2 | 4,4 | 4,4 | 4,7 | 4,9 | 5,2 | 5,4 |
| New client | 1,3 | 1,2 | 1,6 | 2,0 | 2,2 | 2,4 | 2,5 |

Accuracy: New clients = 89% ; Existing client = 96%

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# Forecasting evolution of polyster prices by adding oil prices as external variable



Confidential – for discussion purposes only

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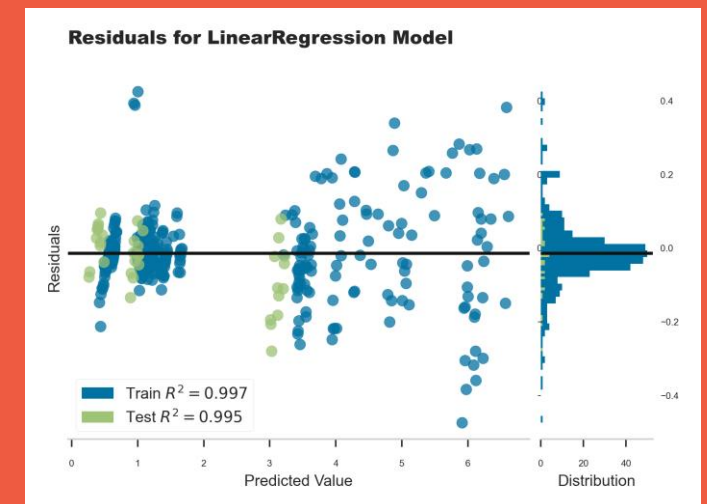# Forecasting exchange rate using XGBoost and Linear Regression



XGBoost

Linear Regression

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# Thank you!

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