Sales Forecast WellPack AG

Implementation of a Sales Forecasting Decision Support System based on internal and external economic data

Student

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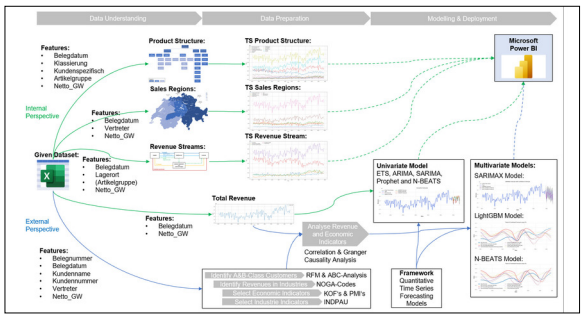
Objective: The volatile nature of economic development and the occurrence of disruptive events, pose significant challenges to estimating future market trends. These uncertainties highlight the need for robust forecasting systems that provide reliable insights to support tactical and strategical decisions for companies. WellPack AG wants to enhance their operational planning and therefore the goal of this project work is to establish a robust sales forecasting decision support system based on time series forecasting. This system should be capable of predicting future sales trends by leveraging patterns in historical sales data and incorporating external economic indicators.

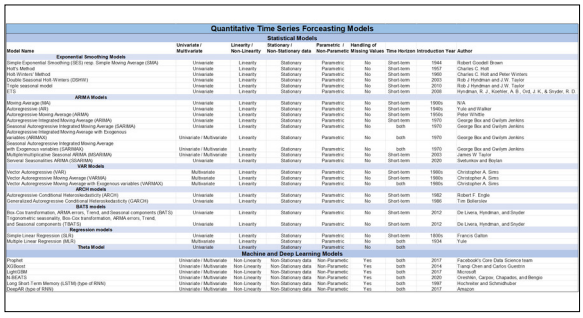
Approach: To identify external economic and industry-specific indicators for the company, a RFM and an ABC classification are used to categorize A&B-Class customers. With the use of AI language models customers were assigned to industries and a pivot table was used to evaluate the highest revenue-generating industries. The Granger Causality Test was applied to assess the informative value of historical developments of the economic indicators for predicting the company's future revenue. In order to select appropriate forecasting models, a framework comprised of various statistical and machine learning time series forecasting models was developed. For the univariate and the multivariate case, where economic indicators are incorporated as well, several classical and novel time series forecasting models were applied. Lastly, the time series preparation and modelling processes were implemented into Python Visuals in the business analytics service Power BI.

Result: The process applied in this project proved to be a promising and a successful way to predict future shifts in a company's overall economic situation. The new sales forecasting system offers valuable insights into trends and disruptions. Specific recommendations to improve this sales forecasting system were given and will provide even more crucial insights for strategic decision-making.

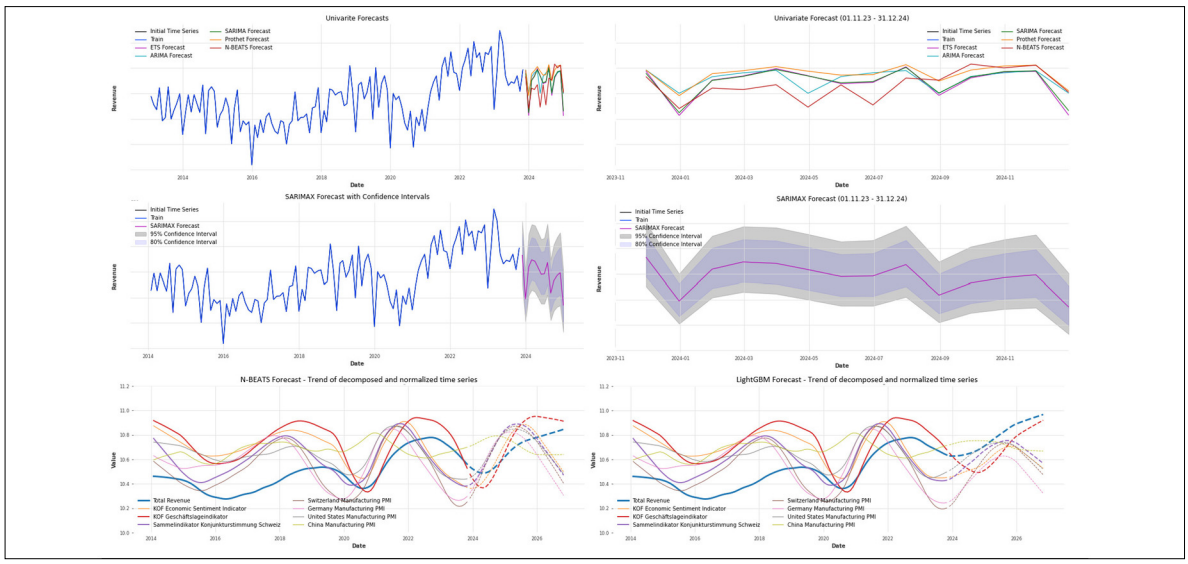
Project overview
Own presentment



Framework - quantitative time series forecasting models
Own presentment



Summary forecast results
Own presentment



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Subject Area
Business Engineering, Data Science

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