



SIEMENS

Siemens Advanta Consulting

Case study challenge

NOVA IMS | March 15th, 2024

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[siemens-advanta.com](https://www.siemens-advanta.com)

The challenge is a monthly sales forecast based on real data from a Siemens business unit in Germany

Challenge overview

Sales forecast on monthly basis

Business area

- Selected product groups of one Business Unit of our Smart Infrastructure Division
- Focus on biggest country of business unit (Germany)

Data

- Sales data from October 2018 to April 2022
- Important macro-economical indices

Evaluation:

- Quantitative evaluation of score (Metric: RMSE) via separated test set (May 2022 to February 2023 – 10 months)
- Submission until April 10 via Moodle and email



Why is AI-driven sales forecast so important?



Manual forecasting is highly resource intensive – many “person-days” per month



Manual forecasting is biased through aggregated “judgement” of multiple stakeholders



Information scattered over many data sources ever-changing base-lines



“Opportunity Cost” of poor forecasting is significant – on working capital &/or customer satisfaction

Businesses and Services of Siemens AG

Industrial businesses

Digital Industries



Smart Infrastructure



Mobility

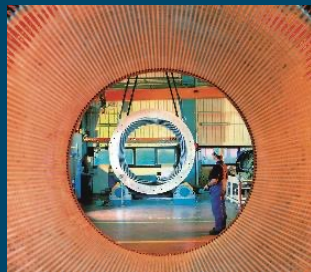


Siemens Healthineers¹



Other businesses

Portfolio Companies



Siemens Advanta



Services

Siemens Financial Services



Siemens Real Estate



Global Business Services



¹ Publicly listed subsidiary of Siemens; Siemens' share in Siemens Healthineers: 75%

Smart power distribution from medium-voltage to low-voltage

Medium-voltage Components, Systems & Solutions

Components



Primary Air-insulated Switchgear



Gas-insulated Switchgear Prim / Sec



SF6-free blue GIS Prim / Sec



Generator Circuit Breaker Switchgear



Photovoltaic (PV inverter systems)



Low-voltage Systems

Power Distribution Boards & Motor Control Centers



Busbar trunking systems

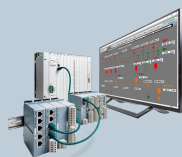


Automation, Protection & Communication for high- and medium-voltage Systems

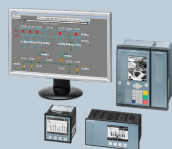
Protection



Automation



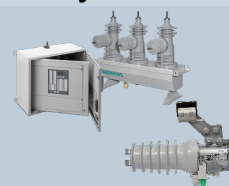
Power Quality



Smart Communication



Outdoor Distribution Systems



Solution Business (E-House systems)



Services

Data provided consists of daily sales data from Siemens product groups and key market indices



Sales data

- Daily sales data per GCK (product groups) in EUR
 - Training set (daily): 'Sales data.csv'
 - Test set (monthly): 'Test Set Template.csv'



Macro economical data

- Important macro-economic indices for Siemens in its most important countries: 'Market data.xlsx'
- This includes for example:
 - Production Index Machinery & Electricals
 - Shipments Index Machinery & Electricals
 - Price of Base Metals
 - Price of Energy
 - Price of Metals & Minerals
 - Price of Natural gas index
 - Price of Crude oil, average
 - Price of Copper
 - Producer Prices

Datasets available on Moodle

Dataset available on Moodle

The test set should be sent by April 10th and the results will be determined quantitatively by SAC



Submission of results

- **Deadline**
 - Submission until 23h59 April 10, 2024
- **Test set submitted also to Siemens Advanta Consulting**
 - **Mail addresses:** hande.karatay@siemens.com and edward.graf@siemens.com
 - **Subject:** NOVA/SAC – Group Name (e.g., NOVA/SAC, Group A)
 - **Format:** Please use the CSV 'Test Set Template' including three columns (Year Month, Mapped_GCK, Sales_EUR)



Evaluation of results

- **Quantitative evaluation of results by SAC**
 - Score on test set via RMSE
- **Qualitative evaluation of results, presentation and code by NOVA IMS**



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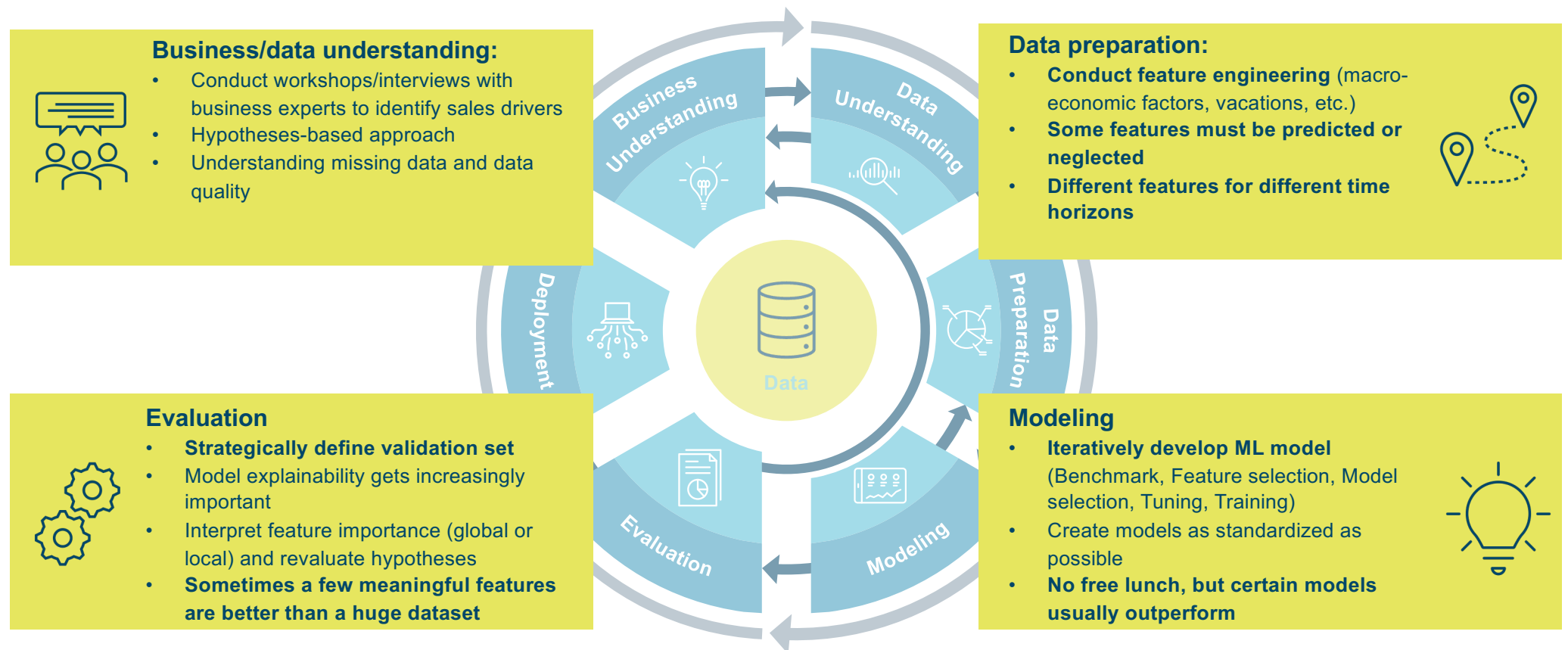
Q&A Session

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The reasons for Data Science projects to fail are manifold – the CRISP-DM framework is one lever to mitigate the risk of failure



Source: Siemens Advanta Consulting

It is time for your questions!

