

Price Forecasting

 **Microsoft**
Solutions Partner

Infrastructure (Azure)
Data & AI (Azure)
Digital & App Innovation (Azure)
Security
Biz Applications



Celebal Specialization and Strength



Partnerships



Advanced Specialization



- AI & Machine Learning
- Analytics
- Infra and Database Migration
- Kubernetes
- Cloud Security
- Low Code No Code
- Intelligent Automation



INDIA | USA | CANADA | APJ | MIDDLE EAST | AUS

2800+
Employees

800+
AI experienced
professionals

500+
AI Certifications



Industries We Serve



Manufacturing



Retail & CPG



Financial
Services



Energy &
Sustainability

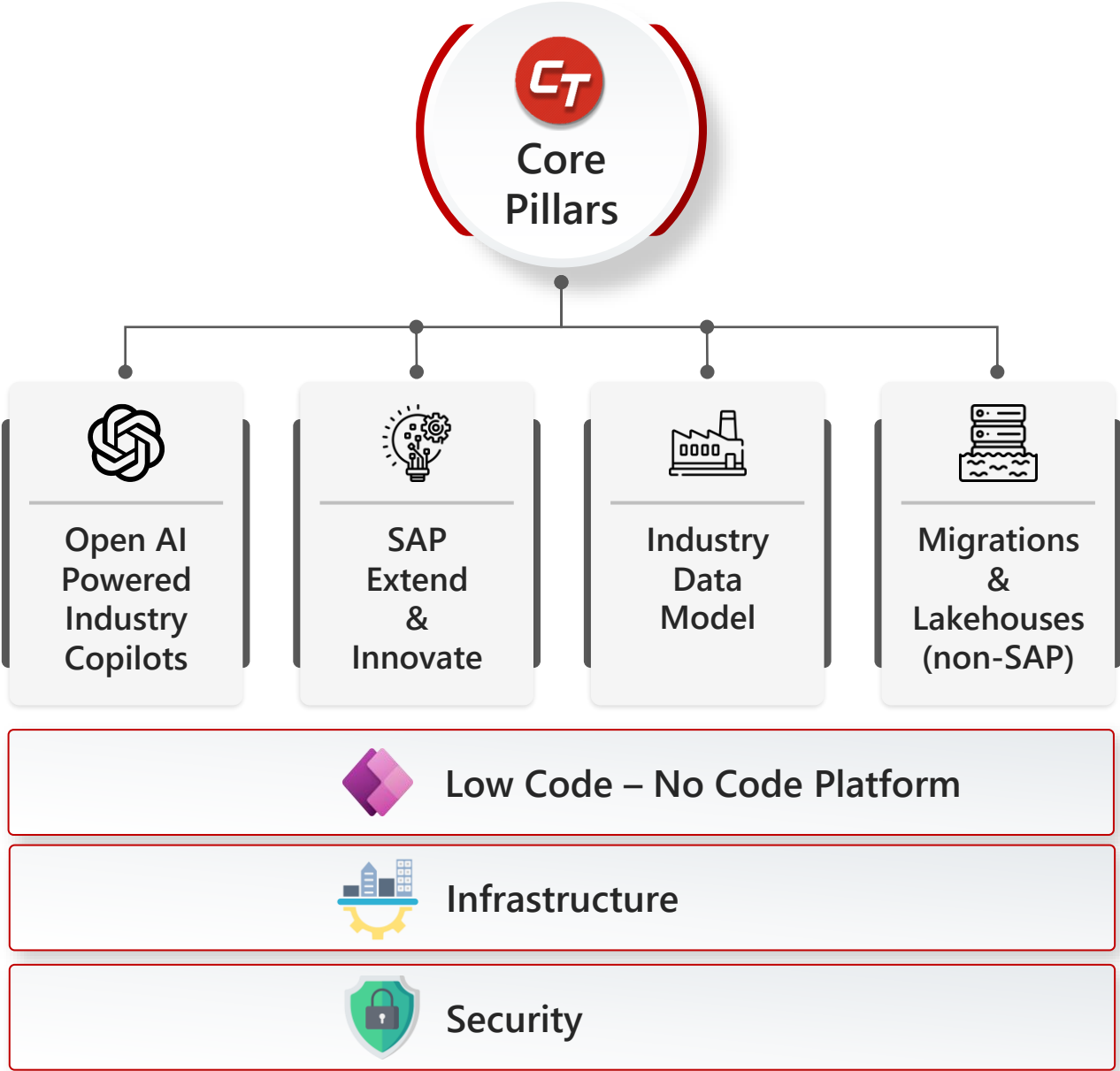


Healthcare &
Life Sciences



Media &
Entertainment

Celebal Core Pillars



1. Brief Description of the Solution:

The Price Forecasting Solution in the energy sector utilizes Azure Machine Learning, Azure Kubernetes Service, Azure Storage, Function App, and Azure Container Registry to anticipate future electricity prices. It processes historical data, live market inputs, and critical variables such as weather shifts, supply-demand trends, and regulatory developments to support timely and informed pricing strategies. Accurate forecasts enable energy enterprises to plan effectively and reduce exposure to market volatility. The solution guides decisions on optimal timing for electricity purchases, profitable sale of surplus energy, and prioritization of investments in infrastructure or renewable assets. By offering a data-backed view of price trajectories, it supports operational precision, cost control, and long-term stability across the energy value chain.

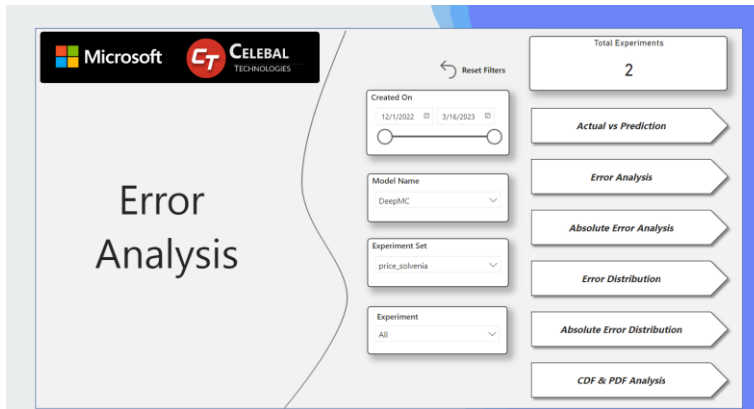
2. Business Problem It Solves:

Energy companies face significant challenges in forecasting and planning amidst volatile market conditions and evolving regulatory landscapes. Traditional forecasting methods often fall short in accuracy and fail to incorporate real-time data effectively. This leads to suboptimal resource allocation, increased operational costs, and missed opportunities for revenue optimization.

3. Value Add for Customer:

- **Unparalleled Accuracy:** Embrace advanced algorithms and data-driven models to analyze vast datasets with precision, providing you with highly accurate price forecasts.
- **Real-Time Monitoring:** Monitor market conditions and price changes in real-time to take informed decisions and prompt actions.
- **In-Depth Analysis:** Dive deep into historical and current market trends to understand the factors driving price fluctuations and develop strategies to mitigate risks.
- **Seamless Integration:** Easy integration with your existing systems and processes ensures a smooth transition into a more profitable future.

Dataset: Client Dataset
Location: Slovenia
Dataset Size: 24 months
Max Price: 871.61 Euros
Average Price: 94.35 Euros



Power BI Dashboard

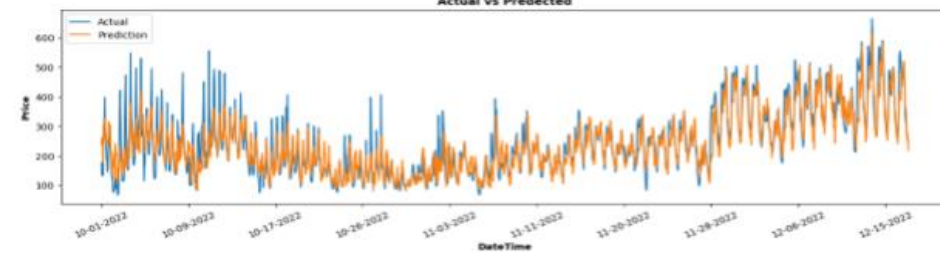
Results

RMSE:
49.03

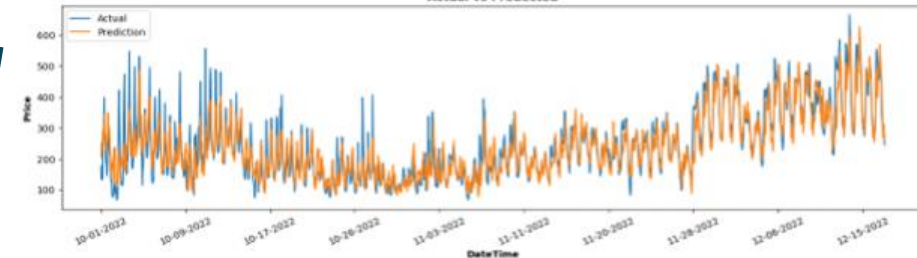
3.5 % relative
improvement

RMSE:
47.31

DeepMC w/o exogeneous
variable



DeepMC with Exogeneous
Variable



- The P&U framework is a solution that meets all the power and utility forecasting requirements in the renewable energy domain.
- Automates the entire data science lifecycle to reduce manual labour.
- Microsoft's Deep MC algorithm, which decomposes localised weather data to understand the interaction between IoT sensor data and weather station forecasts, is included in the framework.



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TECHNOLOGIES

Thank You