CELEBAL TECHNOLOGIES

Microsoft

Generation Forecasting

Microsoft
Solutions Partner

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

Celebal Specialization and Strength

CELEBAL TECHNOLOGIES

Microsoft
AI Partner Of The Year 2023
Global

databricks
Partner Of The Year 2022 & 2023
Asia Pacific and Japan
2 YEARS IN A ROW

databricks
Migrations Partner Of The Year 2023
Asia Pacific and Japan

Partnerships

Microsoft Solutions Partner

databricks Elite Partner

SAP Silver Partner

Red Hat Ready Business Partner

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

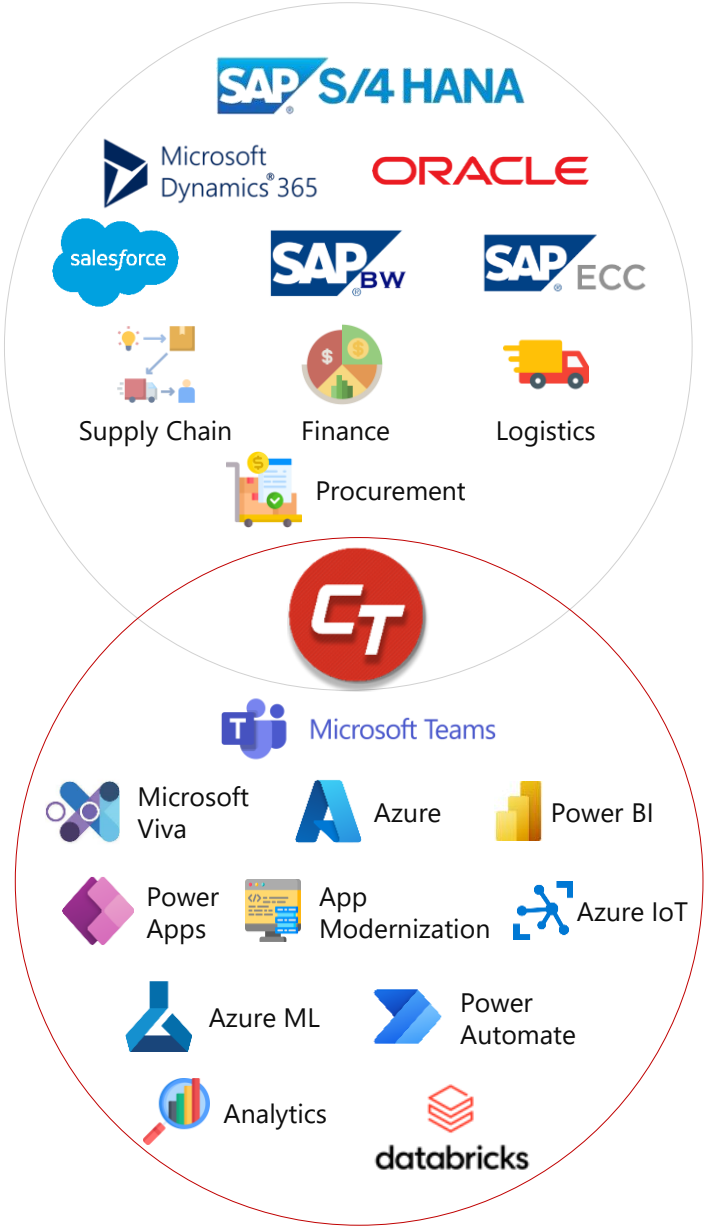
800+ AI experienced professionals

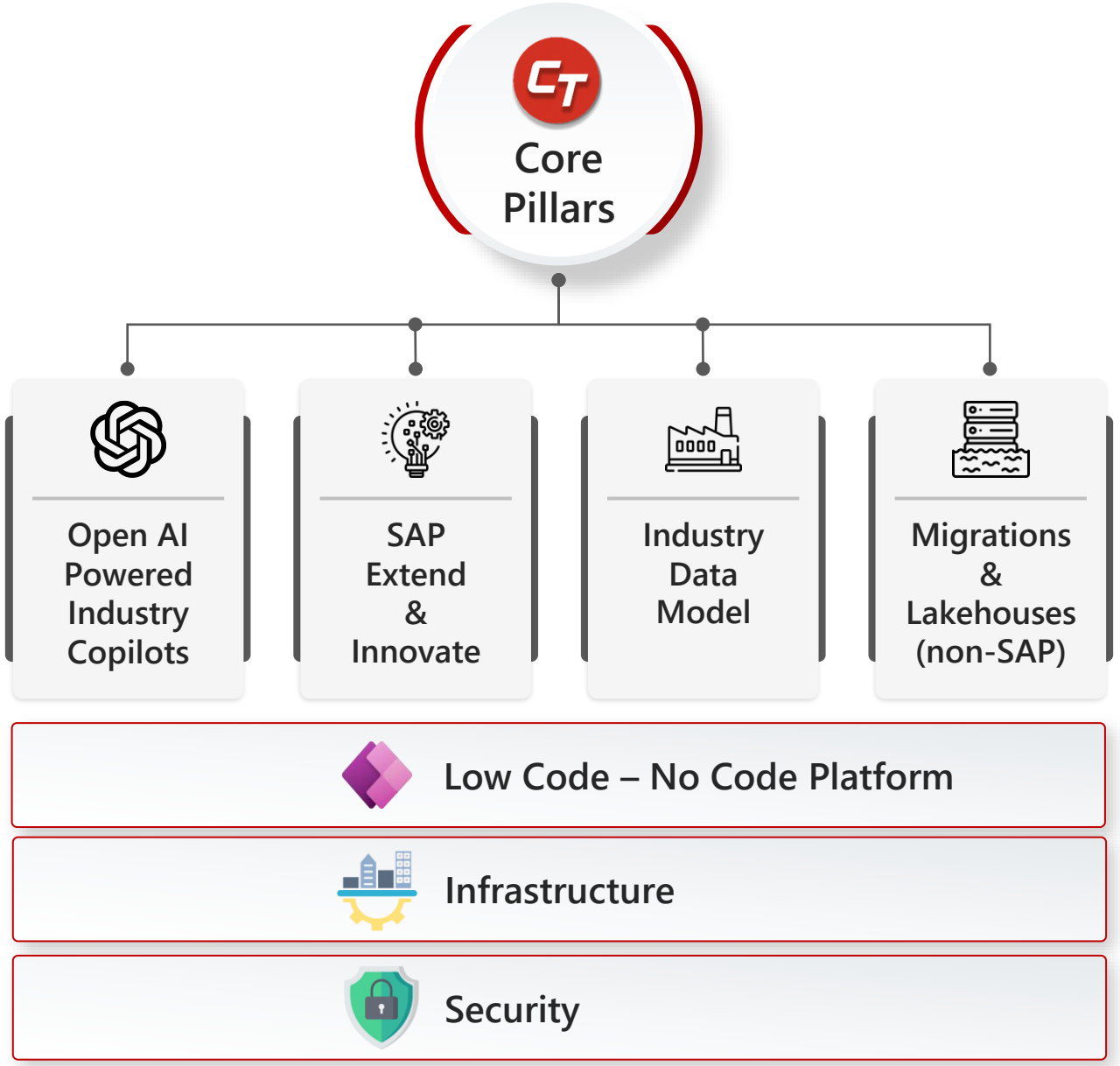
500+ AI Certifications

Industries We Serve

- Manufacturing
- Retail & CPG
- Financial Services
- Energy & Sustainability
- Healthcare & Life Sciences
- Media & Entertainment

Celebal Core Pillars





Generation Forecasting

1. Brief Description of the Solution:

Experience precision in energy forecasting with our advanced Generation Forecasting Solution, designed to predict electricity generation from renewable sources like solar and wind. Using Azure Machine Learning, Azure Blob Storage, Azure Kubernetes Service, and AML Pipelines, our solution provides accurate forecasts that help grid operators maintain a stable supply-demand balance, reduce waste, and minimize operational disruptions. It improves renewable energy integration, supports cost-effective operations, and strengthens grid stability while reducing carbon footprints.

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:

- **Advanced Data Analytics:** Leverage advanced machine learning and time-series analysis to extract actionable insights from historical, real-time, and meteorological data.
- **Precision Prediction:** Delivers precise predictions of electricity output from solar, wind, and other renewables, ensuring a stable power supply.
- **Real-time Monitoring:** Monitor generation forecasts and grid conditions in real time to respond swiftly to fluctuations, improve load balancing, and minimize disruptions.
- **Renewable Energy Integration:** Seamlessly integrate renewable energy sources like Solar and Wind to lower carbon emissions and maximize asset utilization.
- **Grid Stability:** The Generation Forecasting solution helps you maintain a reliable power supply, even in peak demand situations.

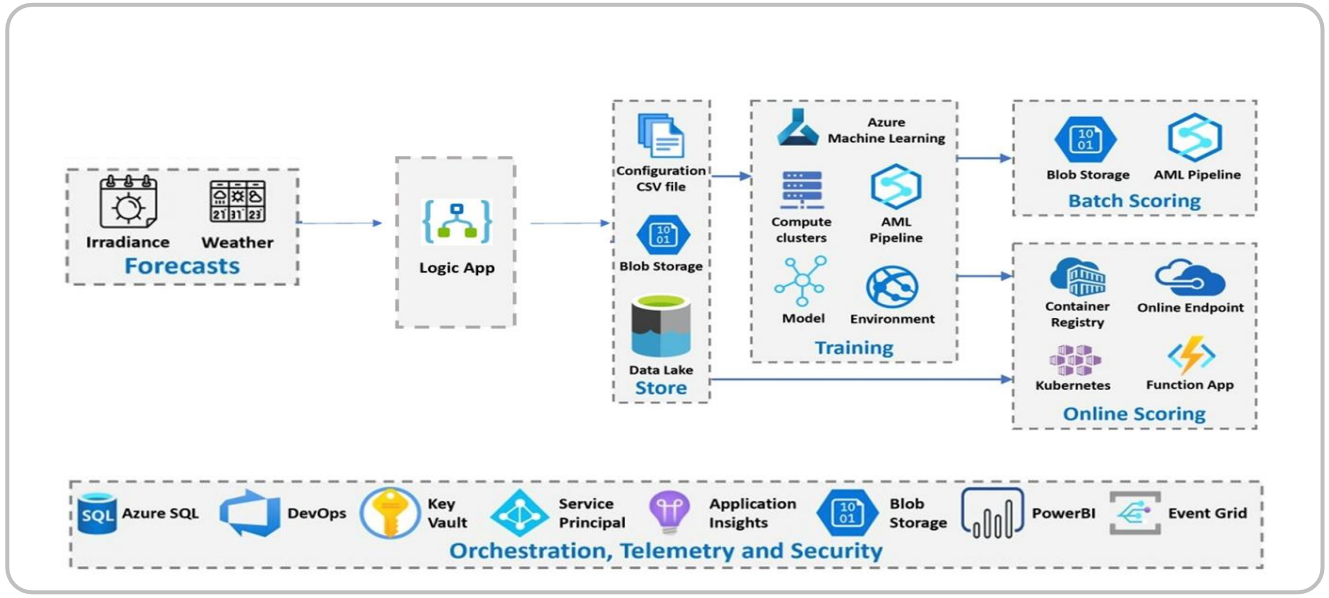
Case Study – India-based Client
(Generation Forecast)

Business Challenges

- The client required accurate forecasted power values to minimize the penalty resulting from discrepancies between the actual power and the forecasted power.

Business Impacts

- Better Accuracy and reduced penalty thereby less revenue loss to the client
- Accurate Forecasting
- Comparative analysis of the data in real time
- Easy monitoring and better tracking of generation and weather data



Solution

Celebal Technologies had proposed a time series model-based solution developed on Microsoft's Power and Utilities framework to help increase their forecasting accuracy and reduce penalty and thereby reduce revenue loss.

For Intra Day Forecast

Time Series model was prepared to predict power generation at the below-mentioned specificity.

- Granularity for Prediction was 15 minutes
- Time Range for prediction was in 9-time slots in a day where each slot will be of 6 steps prediction.
- Grace Period mentioned below as per confirmed by client

For Day Ahead Forecast

Time Series model using was prepared to predict power generation at the below mentioned specificity.

- Granularity for Prediction was 15 minutes
- Time Range for predicting day-ahead values will be 5:30 AM to 7:00 PM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Thank You