

A leading construction company uses Azure Machine Learning and BI to mitigate risks in their construction projects



Customer

One of the nation's largest and diversified construction company providing nearly every type of civil, commercial and industrial construction services in the US.

Business Challenge

- The customer had a **manual predictive system** where project managers had to manage ongoing projects solely on their experience and intuition
- Many times, risks were not identified at the last moment, or even went unnoticed. Even re-estimation on identified risks could not help in recovering the impact on forecast profitability
- The current process wasn't realistic and scalable. Historic information related only to project managers' experience was not used appropriately
- Customer was looking for a scalable solution by learning from historical data, which is easy to interpret and help them in risk identification and decision making. The new solution must be:
 - ✓ Able to recognize patterns related to project risks and decision making
 - ✓ **Cloud-enabled** and identifies potential data quality issues
 - ✓ Showcase the trend and **forecast** the cost/profitability impact on user selection of the most important factors

WinWire Solution

- WinWire developed an **Azure SQL** based data platform by using **Azure Data Factory** to pull in historic and current project information
- Analyzed the data using **Python** based notebooks and identified and tuned hyperparameters
- Created several **Machine Learning** models based on leading indicator information and selected the best fits
- **Trained** these models by learning from the historic information and scheduled retraining with ongoing data
- Created **Power BI** reports showing the trends and possible data quality issues
- Used **R script-based** reports by learning from past projects on the risks, cost/profitability impact and corrective steps taken to minimize the risks
- Helped the team to make intelligent project execution decisions by leveraging **What-If Analysis** reports

Business Value

- Help project managers foresee any potential risks and recommend them corrective actions
- Easily integrated into current analytical/ reporting platform
- Enhanced control on data quality
- Reduced negative impact on profitability
- Integrated business process to ensure smooth maintenance going forward
- Centralized store of information to manage and mitigate risks/ issues across all ongoing projects