

Developing a Power BI Weather Dashboard to Optimize Transportation Costs

As a part of a longstanding relationship with a biopharmaceutical firm, Clarkston developed a PowerBI tool to monitor temperature forecasts around the United States and compare them to historical forecasts with the goal of planning shipments around the drug product's temperature requirements.

The client's drug has a labeled storage condition of 20 to 25 degrees Celsius with excursions permitted between 15 and 30 degrees Celsius. A solution was needed to reduce transportation and packaging material costs. A quality memorandum was released supporting temperature excursions within 2 to 40 degrees Celsius for no more than 30 days during shipping and/or transport. With an updated temperature range, the logistics team wanted to test other shipping methods and containers but needed large amounts of data easily accessible and usable to make these shipping related decisions. The client engaged Clarkston Consulting to identify optimal weather conditions for maximizing cost savings and to develop an automatic dashboard to monitor global weather conditions, which can then be used to identify optimal shipping windows.

Life Sciences Case Study

PROJECT OVERVIEW

INDUSTRY:



Life Sciences

PRODUCTS AND SERVICES :



Topical non-steroid cream
to treat Plaque Psoriasis

PRIMARY OBJECTIVES:

- Identify optimal weeks to minimize shipping costs based on historical weather data
- Build out a machine learning model to improve forecasting over time
- Monitor weather forecasts across client sites around the globe to identify adverse temperature and weather conditions
- Ease searchability to allow client to more easily monitor and plan for weather conditions across their supply chain network
- Introduce flexibility in transportation planning by increasing the window for planning shipments around weather from one week prior to planned shipping to a yearly summary of weather conditions for each distribution site in client network

RESOLUTION:

- Connected client with API from OpenWeatherMap/Data to allow daily weather forecasting across their global supply chain network
- Built a machine learning weather model for each distribution center in the client's network, leveraging 40 years of historical weather data to predict the average daily temperature for each location within a 95% confidence interval
- Built an interactive map allowing the client to visualize the temperature of different receiving sites for sales representatives
- Built a dashboard showing 16-day forecasts, summarizing the weather forecasts for the client's entire distribution network

KEY BENEFITS:

- Built a tool that provides an overview of weather conditions for each site within the client's distribution network
- Identified optimal shipping weeks using historical data to minimize transportation costs based on cost of packing materials
- Empowered the transportation team to easily monitor weather across their distribution network more quickly and efficiently
- Incorporate new daily weather monitoring into historical weather data to improve analysis and account for climatological changes around the world and the U.S.



KPIs

- ~645K in savings from full scale pilot; projected to save \$1MM+ annually.
- 40 hours of time savings biannually with this dashboard

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