Utility company seeks to understand energy usage

Regional utility company wants to understand how businesses are using energy, but their data is too broad to conduct detailed descriptive analytics

Providing over 14 million people with electricity across a service territory of approximately 50,000 sq. miles, this utilities company had collected a huge amount of data over its decades of operations. The company wanted to leverage their data to understand how business clients are using their energy and what is driving their consumption, but their data only allows them to show how much total energy a business is using over time. Without more nuanced data on hand, the company can't perform more detailed descriptive analytics and dig deeper into what's happening.

Competitive Analytics was hired to use their expertise, robust methodology, and the wealth of data held in the company's DECIPHER™ Data Store to conduct descriptive analytics and reveal what is happening with commercial sector clients' energy usage.

Blending external data with client data enabled Competitive Analytics to produce previously unattainable insights

The utility company's data primarily holds client information (e.g. location, industry and segment) and energy usage per client in 15 minute intervals. In order to identify how businesses are behaving on a more granular level, Competitive Analytics leveraged its DECIPHER™ Data Store, which holds thousands of datasets, in addition to several other external data sources to enable more detailed analytics. Blending other data like weather, rentable building area, occupancy, and geographic location, Competitive Analytics was able to reveal new insights about consumer behavior.

Exploratory analysis and model development revealed factors driving energy consumption

Competitive Analytics used the blended time series data it prepared to carry out intensive exploratory analysis. Results of this analysis found correlations between energy usage and numerous variables of interest, including temperature, weather, industry, ZIP, City, Segment, Customer, Building, etc. To display findings in an easily accessible and digestible way, Competitive Analytics developed an intuitive, interactive dashboard for data visualization.

Advanced analytics revealed consumption patterns specific to customer segments

Using advanced proprietary methodologies, Competitive Analytics discovered energy consumption patterns specific to customer segments. Descriptive analytics of particular customer segments enabled the identification of energy consumption patterns that are consistent with industry-level operational needs. For example, retail locations were found to have higher energy consumption during peak trading hours. These data-driven findings provide the building blocks from which diagnostic analytics can be built. In the next phase of the project, Competitive Analytics will use pioneering advanced analytics to diagnose what types of equipment are causing trends in energy consumption.

Interactive dashboards enable staff to access current and historical consumption patterns by customers and types of businesses

Competitive Analytics developed interactive dashboards that enable the utility company to view a business's energy consumption at any point since they became a customer, compare that business's energy consumption patterns over time, and compare its energy consumption to other businesses in the same industry. With these comprehensive dashboards, staff can also see how different types of businesses (like grocery stores, manufacturing plants, etc.) consume energy currently and historically and how their energy consumption has trended over time by year, month, week, day, and 15-minute interval.