Machine learning model provides insight into the key drivers for product market share

Creation of a statistical model along with thematic bucketing provided direction on where to focus marketing efforts

Overview

The control of weeds is essential to maximize yield and provide quality wheat grains for growers. Demand for herbicide products to control these weeds creates a highly competitive market for manufacturers such as this International Agribusiness firm.

The firm has many different methods that they could utilize to increase market share and ultimately drive additional revenue. Choosing where to invest their time, resources and money to achieve additional market share was very difficult. With varying agronomic regions, multiple levers and varying data points, this choice often becomes a guessing game based on individual perception of the marketplace.

Industry: Pharmaceutical and Life Sciences
Location: Calgary, AB (headquarters of Canadian Agriculture arm of business)
Size: 110,000 employees globally (1,400 in Canada)

Company Bio

The company is a multinational pharmaceutical and life science company. The work described herein was completed with the Canadian Agribusiness arm of the company.

The Challenge

Preparing the data is an important first step in building a machine learning predictive tool. For this project we were faced with 14 separate data sources that needed to be joined into a single set of variables. For many of the datasets we needed to transform the data structure to get to a single machine learning data model with the same level of granularity across all data sources.

We were also faced with the challenge of how to manage missing data elements. To fill in the blanks we developed a rule-based approach utilizing the values that we did have. We then applied agricultural industry experience-based adjustments to finalize the missing values.

28 Market Share Correlation Levers

8 Thematic Lever Groupings

85% Model Prediction Accuracy

The Solution

Using Microsoft Azure Machine Learning, we created a set of statistical machine learning models, one for each relevant consumer zone identified by the client. This provided us with two key deliverables, first was the ranking of variables or levers that drove market share. Accompanying this ranking of levers was a predictive tool that the client was able to use to run “what if” scenarios that allowed them to adjust variables and predict potential market share outcomes. This tool enabled the client to simulate price elasticity scenarios to guide them in future year pricing and product incentive decision making.

The Results

Combining the agronomic expertise of the client with Raven Bay’s technical and mathematical skills, we were able to identify the influential levers for market share in each relevant consumer zone. With the key variable levers identified this information was then transformed into business strategies and tactics ranging from pricing, manufacturer representative education and retail information presentation to help drive additional market share.

“Machine learning is being used today to determine pricing elasticity by each product, factoring in channel segment, customer segment, sales period and the product’s position in an overall product line pricing strategy”

Forbes[1]

About Raven Bay

As a full-service management consulting and analytics firm able to deliver solutions in both the business & technical realms utilizing the same set of resources; thereby shortening delivery timelines and providing more holistic solutions for our clients. Our proven methodologies & hands-on experience enabling organizations to achieve the benefits of an effective analytics program through this offering also accelerate the development & value realization of the unique Governance Model we will create for you.

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1 https://www.forbes.com/sites/louiscolumbus/2018/02/25/10-ways-machine-learning-is-revolutionizing-marketing/#2031cd525bb6