GENERAL MILLS, INC.

IIMPROVING FORECAST ACCURACY FOR NEW PRODUCT LAUNCHES USING MACHINE LEARNING MODELS

Student Team:
Tania Martinez Garcia – Master of Supply Chain Management
Erik Knapp – EGL (BSE/MSE Industrial and Operations Engineering)

Project Sponsors:
Beth Blaylock – Supply Chain Initiative Leader
Gary Donahue – Supply Chain Initiative Leader
Christine England – Sr. Manager, Technology & Analytics
Dave Engler – Director, HMM & Supply Chain Strategy
Ethem Ucev – Analytics Consultant, Supply Chain

Faculty Advisors:
David Kaufman – College of Engineering
Joline Uichanco – Ross School of Business

One of the world's largest food companies, General Mills, Inc. (GMI) manufactures a wide variety of packaged consumer foods, generating revenues of $16.6 billion USD in fiscal year 2016. To differentiate itself, innovation, in the form of 150+ annual new product launches, is critical to the organization's continued success. As the uniqueness of new products increases, the ability to accurately forecast customer demand decreases, leading to inaccurate forecasts and the erosion of profit margin. Consequently, there is an opportunity to increase margin by improving forecasts for new products.

To address this opportunity, the Tauber team, using business analytics, developed a machine learning solution to better forecast new product demand. First, the team developed an algorithm to select the most appropriate like products based on product characteristics. In addition, prediction algorithms were developed to directly forecast demand without using like product selection. To help ensure the realization of expected cost savings, the Tauber team made recommendations for wide-scale implementation of the new process throughout the company.

The new process was tested as a pilot study on historical launches and reduced forecast error by 80%. This translated to ~50% increase in net margin for the study. The team then implemented the new process for a live launch. Initial results were consistent with expectations derived from the pilot study. Implementation within the operating unit of the historical launches is estimated to produce short term savings of 12% of new product revenue. Long-term savings achieved through implementation across all operating units is estimated at between 10% and 18% of annual new product margin, depending on the product category.