

Supply Chain Demand Forecasting

Description of Project

The student Team will develop and deliver an improved model for demand forecasting of product at both an individual SKU (Stock Keeping Unit) and aggregated SKU data for Kellogg's Top 25 Customers within the demand sensing horizon (0 to 6 weeks). The model will be based on input variables from the supply chain. Current datasets available to students will include historical information of Kellogg's, production, shipments, production plans and customer orders as well as a smaller dataset of POS (Point of Sales) data from one major customer.

Phase One: Students will create a customer (grocery order) demand sensing model for customer demand within the 0 to 6 week planning horizon based on supply chain and market variables. The model should improve on the status quo forecast based on internal supply chain data, manager "consensus" data", open orders and open shipments. The student model will be validated against current internal capabilities.

Phase Two: Incorporate POS (Point of Sales) data to improve the forecasting performance of the phase I model.

The Final deliverable is a statistical model at the SKU demand/Week level; improving forecast accuracy in the 6 week horizon based on near-term demand signals. The students should make recommendations supported by their quantitative results for process / procedural changes in the supply chain operations that would improve the bottom line.

Location

- University of Michigan Campus (Primary)
- Kellogg Battle Creek, MI. Campus

Project Sponsor Mentor

Seth Parker – Sr. IT Business Relationship Manager



Seth Parker is a Sr. IT Business Relations Manager at Kellogg responsible for supply chain technology strategy, innovation, and capital planning. Seth has 16 years of experience working in roles including information technology, supply chain, project management, consulting, and strategy. Seth currently resides in Grosse Ile, MI with his wife and 3 three kids.

Chad Schumacher – Sr. Director



Chad Schumacher is Senior Director of Data Science for the Kellogg Company where he is charged with enhancing the culture of data and analytics throughout the organization. During his career at Kellogg, he has worked extensively in a variety of analytical areas including: price and promotion analytics, demand sensing and forecasting, marketing mix, supply chain optimization, and profit leakage. Chad resides in

Kalamazoo, MI with his wife and his three very active boys

Executive Sponsors

- Fede Conde – Sr. Director

Project Faculty Mentor



Steven Pollock

Emeritus Professor, Industrial Operations Engineering

Key Skills & Project Roles

MDP Sponsored Projects are both a professional and academic learning experience for students. By participating in this program, students are actively preparing for graduate school and a professional career. As part of the experience, MDP expects professional behavior. To best prepare you for future professional opportunities, your experiences on this MDP team will be very broad. In addition to key technical skills that you will bring to the team, you will engage deeply in the self-directed learning of new and important concepts, demonstrate flexibility, collaboration, and cooperation, and develop strong professional communication skills. This also means that you will need to be able to work outside of your traditional area of study in the true multidisciplinary nature of our projects. You won't always be able to anticipate how your skills and expertise will be used, so the MDP Sponsored Project will challenge you to grow and develop as a professional.

Project Roles	Key Skills and/or Knowledge	Likely Majors
Data Science (3 – 4 students)	Handling Complex Data Sets and "Big Data", Analysis, Statistics, multi-relational databases	Data Science, Statistics, Mathematics, Industrial Operations Engineering, Computer Science, School of Information
Supply Chain Analysis (2-3 students)	Supply Chain Analysis, Optimization, Business Analysis	Industrial Operations Engineering, Business

Desired Additional Knowledge, Skills and Experience:

SAS Platform Experience, Project experience or coursework in Operations, Purchasing and Supply Chain Management, Business Systems Consulting; Tableau and other big data modeling software.

Development Environment

The students will be provided with the following:

- Access to Kellogg network/SAA tools and data via remote access (VDI)
- Access to Kellogg statistical modeling software (SAS GRID, SAS Forecast Studio, SAS Enterprise Miner).
- Access to Kellogg supply chain data, including POS data via a Sharepoint site for the project.
- Contractor access to Kellogg Battle Creek facilities.

Company Overview

With 2013 sales of \$14.8 billion, Kellogg Company is the world's leading cereal company; second largest producer of cookies, crackers and savory snacks; and a leading North American frozen foods company.

Our Vision

To enrich and delight the world through foods and brands that matter

Our Purpose

Nourishing families so they can flourish and thrive

Foods that Delight

From our kitchen to yours, we take pride in making nutritious, enjoyable foods that are sourced, produced and marketed responsibly.

1,600 foods,
produced in **18**
countries, marketed in more
than **180** countries



Company Awards

World's Most Reputable Companies - (2013) **Forbes**

World's Most Ethical Companies List - (2013) **ETHISPHERE**
GOOD SMART BUSINESS PEOPLE

World's Most Admired Companies List - (2013) **FORTUNE**

Global Green Ranking - (2012) **Newsweek**

World's 100 Most Powerful Brands - (2012) **Forbes**

Best 100 Global Brands - (2012) **Interbrand**

World's 100 Most Innovative Companies - (2012) **Forbes**

Best Places to work for LGBT Equality - (2013) **HUMAN RIGHTS CAMPAIGN**

Top 50 Company for Diveresity – (2013) **DiversityInc**
2013 TOP 50 COMPANIES FOR DIVERSITY

Legal Requirements

Citizenship and Right to Work Options

This project is open to all students. Any internship would require U.S. Citizenship or the right to work permanently in the U.S.

Intellectual Property Agreements / Non-Disclosure Agreements

Proprietary and sensitive information that the University and/or the MDP students is subject to the non-disclosure agreement to be completed by the students.

Internship Information

- Summer Internships Available based on performance and interview

