# BUSINESS ANALYTICS

## Key Components

- Statistical Inference
- Regression Modeling
- Data Mining
- Sampling
- Design Of Experiment (DOE)
- Forecasting
- Quality Control & Process Improvement

## Business Case 1 *(Quality Control, Sampling)*

Bundle Basket is a mail order company that allows consumers to custom design gift baskets containing an assortment of beauty products. During the holiday season, the organization designs and sells over 5,000 baskets daily, with each basket containing between five and fifty items. Last month, the company experienced a high volume of complaints on wrong products being selected for these baskets. The company is interested in reducing such complaints to 1% of total shipments. After determining the appropriate sample size for each range of product size, on a daily basis, samples are selected from the packaging area for inspection to ensure accuracy of the products pulled. Today, the company is experiencing slightly less than 1% of wrong product pulls, a 50% reduction from one month ago.

## Business Case 2 *(Inventory Forecasting)*

ShoeForComfort is a catalog company which sells comfortable women's shoes directly to consumers. During the past three months, the organization test mailed a new creative catalog to a certain percentage of their database in order to help boost sales. Due to the success of this new creative catalog, the company is now facing catalog backorder challenges. The organization decided to build several sales prediction curves using the past three months' worth of sales information, which in turn were fed into the forecasting system to fine-tune inventory levels. Today, the company is able to launch the new creative catalog to a higher percent of the customers in their database and catalog backorder is no longer a problem.

## Business Case 3 *(Market Research, Loyalty)*

SaveU$, a distributor of retail coupons for products and services, receives incentive payments from participating retail stores for each coupon redeemed therein by consumers. Rather than randomly selecting products and consumers to target, SaveU$ analyzes purchasing patterns from major retail stores and applies statistical techniques including regression, segmentation, and neural networks to enhance its marketing efforts. As a result, SaveU$ is able to identify characteristics such as previous coupon redemption, brand and/or store loyalty, lifestyle factors indicating product need, etc., and adjust its consumer marketing efforts accordingly. The result is a sizable increase in consumer coupon redemption, thereby generating incremental revenue.

…creative thinking…a combination of common sense and mathematical reasoning…

…extremely talented….

…relentless in pursuit of accurate, useful information…

- Trudi K. Lindow
- Operations Service Manager, Florida Natural Growers

## Business Case 4 *(DOE, Market Research)*

A specialty poultry producer has always had great success marketing their product to restaurants and would like to understand the benefits, if any, in marketing straight to the consumer. To handle any increase in production they would also like to test a new roasting technique in a larger capacity roaster which will also decrease roasting time. Market Research and analysis were performed to understand the demand for the product and ROI for expanding the business. Further, the new roasters and techniques were tested versus the current process with respect to taste, resulting weight, time to roast, energy consumption, etc.