HATCO Corporation designs, produces and services holding and warming equipment for foodservice applications. It offers products in the areas of Bain Marie heaters, booster water heaters, built-in food warmers, carving stations, chef LED bulbs, cold shelves, commercial toasters, decorative lamps, drawer warmers, food display lights, fry stations, heated display cases/cabinets, heated shelves, heated wells, holding cabinets, hot/cold shelves, hot/cold well solutions, hot food merchandisers, hot water dispenser, light cooking equipment, nacho chip warmers, pizza warmers, portable food warmers, refrigerated wells/frost tops, sink heaters, sneeze guards, and strip heaters. The company sells its products through a sales representative. HATCO Corporation was founded in 1950 and is based in Milwaukee, Wisconsin.

The analysis being done here is a segmentation study for a business-to-business situation, specifically a survey of existing customers of HATCO. The dataset consists of 100 observations on 9 separate variables. The types of information that were collected, is the perception of HATCO on nine attributes identified in past studies as the most influential in the choice of suppliers. The respondents, purchasing managers of firms buying from HATCO, rated HATCO on each attribute.

The nine HATCO attributes rated by each respondent are as follows:

X1 Delivery speed - amount of time it takes to deliver the product once an order has been confirmed

X2 Price level - perceived level of price charged by product suppliers

X3 Price flexibility - perceived willingness of HATCO representatives to negotiate price on all types of purchases

X4 Manufacturer's image - overall image of the manufacturer/supplier

X5 Service - overall level of service necessary for maintaining a satisfactory relationship between supplier and purchaser

X6 Salesforce's image - overall image of the manufacturer's sales force

X7 Product quality - perceived level of quality of a particular product (e.g., performance or yield)

X8 Size of Firm - size of the firm relative to others in this market. This variable has two categories: 1=large, and 0=small

X9 Usage level - how much of the firm's total product is purchased from HATCO, measured on a 100‐point percentage scale, ranging from 0 to 100 percent

X10 Satisfaction level - how satisfied the purchaser is with past purchases from HATCO, measured on the same graphic rating scale as the perceptions X1 to X7

X11 Specification buying - extent to which a particular purchaser evaluates each purchase separately (total value analysis) versus the use of specification buying, which details precisely the product characteristics desired. This variable has two categories:  
 1=employs total value analysis approach, evaluating each purchase separately, and  
 0=use of specification buying  
X12 Structure of procurement - method of procuring/purchasing products within a particular company. This variable has two categories:

1=centralized procurement, and  
 0=decentralized procurement  
X13 Type of industry - Industry classification in which a product purchaser belongs. This variable has two categories: 1=industry A classification, and 0=other industries  
X14 Type of buying situation - type of situation facing the purchaser. This variable has three categories: 1=new task, 2=modified rebuy, and 3=straight rebuy

The company’s business had been considered revolutionary in the field of food service equipment. But during the recent past, the company has been facing issues to generate more revenue and increase the product reach.Therefore, the business problem that is being addressed in this analysis is to increase the company’s presence not just in the US, but Worldwide. This would in return help the executives to plan for their future direction for the company.

Creating models across these factors becomes strenuous as the process needs to assess each variable individually and also together. The results generated out of the nine factors would be too much to be consumed by any individual. Therefore, the team conducted an exploratory factor analysis on the dataset in order to reduce the dimensions and conduct further research on the factors that have genuinely effect on the problem statement.

The team used Logistic Regression Analysis to explore the factors and created a report using SAS software. Logistic Regression Analysis is is a statistical method for analyzing a dataset in which there are one or more independent variables that determine an outcome. The outcome is measured with a dichotomous variable (in which there are only two possible outcomes).

According to the provided variables, specification buying (X11) is classified against X1 to X7, namely delivery speed, price level, price flexibility, manufacturer’s image, service, salesforce’s image, and product quality. In the dataset, the variable X11 has values that correspond to 0 and 1. In which, 0 means no use of specification buying and 1 means total value analysis approach that helps evaluates each purchase separately.

We are classifying the variable X11 Specification buying, which is the extent to which a particular purchaser evaluates each purchase separately (total value analysis) versus the use of specification buying, which details precisely the product characteristics desired. On creating a stepwise logistic regression over the variables we were able to retain price flexibility (X3) and product quality (X7). We found out that the variables X3 and X7 are most useful to classify Specification buying. Also the model tries to take in the variable X5, Salesforce’s image, but it is again discarded from the equation due to violation of Wards statistic test.

We trained the logistic regression model on a dataset of 60 items and tested it on a data set of 40 items.

The trained model worked very well over the test dataset and had produced a high rate of accuracy. The logistic regression model is highly accurate according to the classification matrix.