Procurement Process - Freight Carrier Selection

Business Background & Overview

Procurement Process

U.S. annual procurement process takes place to receive bids from different carriers on our many transportation lanes. We specify the lane (example: Mesquite, TX to Denver, CO), target rate, and annual number of loads we plan to send. The carriers will bid with their most competitive rates, and specify capacity (the number of loads they are willing to haul). Next, we select one or more carriers for the lane, assigning a percentage allocation (example: 50% to carrier A, 25% to carrier B, and 25% to carrier C). Currently we select carriers based on several factors, including rate, capacity, and carrier history/relationship.

From a procurement perspective, we want to find the 'sweet spot' where we can have low costs and achieve high service. If we choose poorly and experience service issues, it usually costs us more to find alternate carriers, and wastes valuable time.

Transportation Execution

Once we've accepted the awards and signed agreements with the carriers, we enter the new rates into our transportation management systems, which we will utilize for one year. As loads become ready to ship, we offer the load to our awarded carriers (based on % award to each carrier from the procurement process). Most of the time, the awarded carriers will accept the load. However, there are times when the carrier may reject the load, for many different reasons. If the load is rejected, we must find an alternate carrier for the load, often at a higher price.
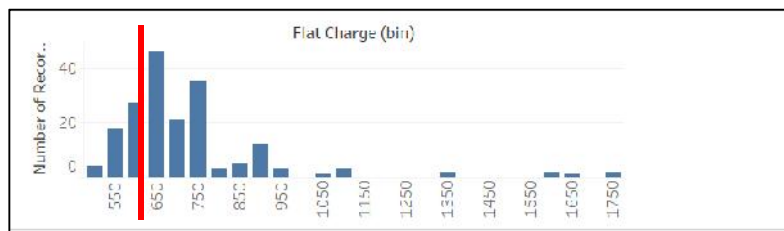
Example:

Weighted Contract Rate across 2 carriers = $500
Actual amount paid to backup carrier or spot carrier = $600
Price Variance = $100

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Hypothesis

We believe there is some inherent risk in simply accepting the lowest bids. The risk is that the carrier may not be able to fulfill their obligation to haul freight for the full year. When this happens, we must find an alternate carrier, often at a higher cost.

This histogram shows number of bids within each price range, for an example transport lane. The red line represents our carrier selection

Round 1 Objectives

Your objective is to quantify and visualize the relationship between our carrier selections and the resulting price deviations. Highlight any other major factors (i.e. geography, carriers, volume) contributing to risk. Be Creative.

Suggested Steps:

Step 1 – For each lane, review all carrier bids, and visualize the price range where we awarded. Did we typically award at the average price, minimum price, or somewhere in between (-1 std. dev.)?

Step 2 – Quantify/Visualize the relationship between our contracted price and the actual price throughout the year. If we chose a carrier at -2 standard deviations, were we able to stay at that cost throughout the year? If we chose a carrier at the average bid price, did we have better actual results?

Step 3 – Research the data to understand the correlations. For example, does our selection range correlate with price deviation? Is there a large variance from lane to lane? What are some of the underlying characteristics about the lanes that cause price deviations? Do we have price increases after contracting to specific carriers? Analyze a lane year over year - do certain selections yield a better result? Does geography impact price variance? Are you able to tie in any external factors – CASS Truckload Linehaul Index, regional freight flows, driver shortage, fuel prices, freight regulations, or other public data?

Step 4 - Summarize the important findings for the deliverable

Deliverable

Your deliverable is a Tableau Packaged Workbook, including <u>at least</u> the following:

1. An <u>executive summary</u> in Tableau clearly describing approach, calculations, and conclusions, with the necessary illustrations and commentary. This could be in the form of a story or dashboard.
2. Optional: 1-2 Storyboards or Interactive Dashboards in Tableau for analyzing the details. If interactive dashboards are included for exploring data, be sure to include some instruction captions in clear view.

Remember, we will have limited time to review each project. Make sure your story/dashboard is very clear and easy to follow. Remove any unnecessary worksheets/visualizations.

Data Description

The data is divided in to 3 parts:

1. Carrier Bids (3 years)

    These are the various bids from carriers we receive for each lane.
2. Carrier Selection (3 Years)

    These are the carriers we selected, with corresponding award percentages.
3. Actual Costs (3 Years)

    These are the results at the lane level, showing actual amount spend vs the planned/contracted amount.

You will find descriptions of each column within the file.