Supply Chain Analysis – Restructuring Carrier Rates

Overview

One of the billing methods that The Vitamin Shoppe (VSI) receives from its shipping companies in shipping products from the distribution center to stores is by weight i.e. the shipping rate is determined by the total weight of a shipment (the heavier, the cheaper). The shipping companies set the prices by a range of weight called “tier”, for example, tier1 has a range of 0-499 lbs., tier2 has a range of 500-1,000 lbs., and so on; the price of tier1 is the most expensive and is cheaper in a higher tier. The current tier structures have remained unchanged since the start of VSI. Therefore, the company believed in a potential of savings from adjusting these tier structures and would like to renegotiate the contracts with the shipping companies.

Objectives

- Diagnose the 2011 delivery data to provide insight into their shipping profiles and highlight areas for potential savings.
- Deliver an Access-based tool that will aid VSI in renegotiating the by-weight billing structures between their shipping companies.

Approach

- Discussed with VSI to ensure that we understand the problem and its scope accurately.
- Gathered customers need and requirements of the project.
- Gathered the 2011 delivery data.
- Defined inputs and outputs.
- Analyzed the delivery data in terms of shipment weight distribution and current shipping costs.
- Performed manual calculations to find savings in each delivery route using different scenarios.
- Confirmed with the sponsor on the results from analysis.
- Started building the tier structure analysis tool in Microsoft Access, integrating VBA programming.
- Finished the draft version of the tool and obtained feedback and comments from VSI.
- Validated the tool by comparing the results from the tool to those from the manual calculation.
- Finished the final version of the tool and incorporated graphic into the interfaces of the tool.

Outcomes

- The total maximum potential savings from the 2011 delivery data for all routes were $456,979 (6%) and the average savings were 258,652 (3%).
- Route Argix Jamesburg yielded the most savings between $120,416 (3%) and 210,143 (5%), or $106 per pound reduced and $113 per pound reduced.

Weight distribution in the tier that has more shipments near its upper limit yields greater potential savings.