# Inventory Optimization for a Food Distribution Network



# Perceptive Analytics

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## Business Situation

NiteFoodie is a medium sized American fast food chain based on the west coast. The client offers a variety of foods and serves around 20 million consumers each year through its 60 restaurants.

The company has recently entered the food truck business and expanded aggressively.

## Summary

NiteFoodie had entered food truck business two years ago and expanded aggressively to gain market share. Due to the fast paced growth processes in the company did not evolve for large scale services. The company faced low margins in its packaged food distribution and found that there was scope for significant improvement.

The company needed a solution to optimize food pack distribution to reduce costs. Perceptive Analytics analyzed processes and developed a tool that optimally distributed the food packages required among the carriers. The whole exercise resulted in annual savings of nearly 17%.

## Business Challenge

Driven by the task of reducing the food distribution and wastage expenses, the company was looking to understand the worth of the cost reduction opportunity. It had multiple authorization points for food package distribution to the trucks which made the process cumbersome. All the trucks were loaded to the capacity irrespective of the location of sales which resulted in excessive packs in some and a shortfall in some other.

A process for the food trucks needed to be developed to be able to redistribute the food packages to trucks with shortfall at the minimum possible cost.
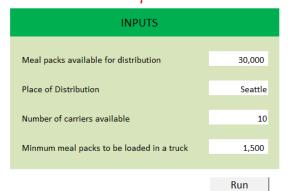
## Solution

Perceptive Analytics designed a business solution to the distribution problem and prepared an account of possible financial savings from reducing the wastage costs. Perceptive Analytics benchmarked the costs of food procurement and the analysis revealed that the costs incurred significantly higher than the others.

Perceptive Analytics built an application for the company to optimize distribution of the packages among carriers with minimum cost and wastage. Historical situations were analysed and run through the prototype application to showcase the savings achievable through optimization.

## Food Distribution Optimizer

### User defined inputs

| INPUTS | |
|---|---|
| Meal packs available for distribution | 30,000 |
| Place of Distribution | Seattle |
| Number of carriers available | 10 |
| Minmum meal packs to be loaded in a truck | 1,500 |

Run

### Output showing optimized distribution

| OUTPUT | | | |
|---|---|---|---|
| Carriers | Meal packs loaded | Demand forecasted | Unsold meal packs |
| Carrier 1 - Downtown | 2,570 | 2,780 | 0 |
| Carrier 2 - Madison Street | 2,764 | 2,780 | 0 |
| Carrier 3 - Stewart Street | 2,764 | 2,780 | 0 |
| Carrier 4 - Olive way | 2,764 | 2,780 | 0 |
| Carrier 5 - Business district | 2,764 | 2,780 | 0 |
| Carrier 6 - James Street | 2,876 | 2,900 | 0 |
| Carrier 7 - Yesler way | 2,876 | 2,900 | 0 |
| Carrier 8 - King Street | 2,876 | 2,900 | 0 |
| Carrier 9 - Boren Avenue | 2,876 | 2,900 | 0 |
| Carrier 10 - Beacon Avenue | 4,870 | 5,000 | 0 |

The application allowed the user to input various parameters with respect to the food packages and carriers. The user could also input constraints like the capacity of a carrier or the minimum number of food packages to be loaded.

After the inputs, upon running the algorithm, the tool optimized the loading of food trucks and the intraday redistribution of food packages to display the output in a simple readable format.

## Impact

With the new tool the carriers were loaded with optimum number of meal packages for the constraints set by the user. It also reduced the intraday redistribution and wastage costs by nearly 17% resulting in increased margins for the company.

# Perceptive Analytics

Perceptive Analytics is a Data Analytics company, offering specialized services in Data Visualization, Marketing Analytics, Web Marketing Analytics, Financial Modeling and Spreadsheet Modeling and Application Solutions. We serve medium to large companies in the USA, India, Australia, Europe and Middle East.

We provide analytics solutions for optimizing distribution channels. The following are samples of some of the other analysis we do: Inventory Optimization, Replenishment Planning Analytics, Demand Analytics, Transportation Analytics and Warehouse Management. We help you formulate an efficient distribution strategy to reduce operational costs and optimize distribution networks.

To know more you can reach us at *cs@perceptive-analytics.com.*