Executive Summary:

All data was analyzed based on product order quantity and product categories.

* Top product categories (greatest to least): Beverages, Dairy Products and Confections.
* Bottom product categories (greatest to least): Grains/Cereals, Meat/Poultry, Produce.
* Top customers (greatest to least): Save-a-lot Markets, Ernst Handel, and QUICK-Stop.
* Bottom customers (greatest to least): North/South, Lazy K Kountry Store, and Centro comercial Moctezuma.
* Top countries (greatest to least): The U.S., Germany and Austria and Bottom countries (greatest to least): Argentina, Poland and Norway.
* Top quarter: Quarter 2 and Bottom quarter: Quarter 1.
* Top months (greatest to least): May, October, and July and Bottom months (greatest to least): November, March and February.
* Top days of the week (greatest to least): Wednesday, Monday, Tuesday.

Analyzing our largest and smallest customers, what country orders the most, what time of the year is most popular for certain products, and more are important to accomplish the goal of maximizing sales, minimizing, costs, and effectively optimizing the business processes. The following are visualizations composed of what data we have from before Covid related issues. They show the disparities in our sales between different times, areas and product categories.

Summary Visualization:

**A graph of colored bars

Description automatically generated**

* Why this visualization?

It shows the number of orders per month in 2018, as it is the only full year of data, organized by different product categories.

* What does it say?

In May, July and October, the orders flourished, whereas in February, March, and November, there was a lack of orders across all product categories in relation to other months.

* Where to go from here?

We need to focus on the weaker months by building a specific marketing campaign for those months and providing discounts and promotions.

* What do we not know?

Northwind Traders is lacking data of changes in consumer behavior post Covid-19 and the local competition.

Visualization 1:

A graph of a number of bars

Description automatically generated

* Why this visualization?

This visualization shows the number of orders per product category in each year of data provided.

* What does it say?

This visualization shows that the top 3 product categories were Beverages, Dairy Products and Confections, while the bottom 3 product categories were Grains/Cereals, Meat/Poultry, and Produce based on total of count of product categories from 2017-2019.

It also shows that Meat/Poultry orders actually began to decline from 2018 into 2019.

* Where to go from here?

The company can use this data to make informed decisions about how much inventory will be needed post-Covid. The company can ensure that they manufacture enough inventory to meet customer demands.

* What do we not know?

The company is unaware of the changes in consumer behavior post Covid-19.

Visualization 2:

A bar chart with different colored bars

Description automatically generated

* Why this visualization?

It shows the top 3 versus bottom 3 countries by the number of product quantity across top 3 versus bottom 3 product categories.

* What does it say?

The U.S., Germany and Austria ordered the most, while Argentina, Poland, and Norway ordered the least

* Where to go from here?

We must focus on increasing sales in the U.S., Germany and Austria while doing market research in Argentina, Norway and Poland to understand factors that keep the sales low.

* What do we not know?

Northwind Traders are unaware of the market trends in those countries, including competitors, purchasing behaviors, and changes in demand post Covid-19.

Visualization 3:

A green circles with black text

Description automatically generated

* Why this visualization?

It shows the top 3 and bottom 3 clients by sum of products ordered.

* What does it say?

Save-a-lot Markets, Ernst Handel, and QUICK-Stop were the largest clients, while Centro comercial Moctezuma, Lazy K Kountry Store and North/South were the smallest clients. This difference was not small either, certain customers were ordering thousands more products over the time period of the data set than others.

* Where to go from here?

The company can use this data to analyze the purchasing behaviors of the top 3 and bottom 3 clients by looking at pricing, competition, and customer services.

* What do we not know?

The company is lacking the local competition data as one of the factors to understand why the bottom 3 clients make the least orders.

Visualization 4:

**A graph of a number of orders

Description automatically generated**

* Why this visualization?

It shows the most and least ordered quantities per day of the week for the most popular category versus the least popular category during that particular day.

* What does it say?

Beverages had the highest amount of order quantities for all days except Friday and  Produce had the lowest amount of order quantities for all days except Friday. Friday had the highest demand for Confections and lowest demand for Condiments.

However, sales on Friday were still significantly lower than other days.Note that no sales occurred on the day of Saturday. Monday, Tuesday and Wednesday had the most orders, while Friday’s sales were noticeably lowest.

* Where to go from here?

We must prioritize stockings and promotions on the Beverage on Monday, Tuesday and Wednesday to promote sales.

* What do we not know?

The company is unaware of the reasons for the decrease in sales on Fridays and Saturdays, and consumer behaviors pre and post Covid-19.

Visualization 5:

**A screenshot of a graph

Description automatically generated**

* Why this visualization?

 It shows the number of sales in the top 3 and bottom 3 product categories for each quarter of the year 2018. Besides, the year 2018 has the most complete data.

* What does it say?

 It shows that the first quarter has generally less sales than any other quarter. It also shows that the best quarter over all is the second with growth observed in all categories except for Beverages.

* Where to go from here?

We should look into why the sales in the first quarter are lower than the others and vice versa why sales in quarter two were the highest.

* What do we not know?

The company is lacking data for the year 2017 and year 2019 and shifts in consumers’ purchasing behaviors during holidays/sales.

Conclusion:

All data was analyzed based on product order quantity and product categories.

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