Supply Chain Analysis

- The supply Chain is the network of production and logistics involved in producing and delivering goods to customers. And Supply Chain Analysis means analyzing various components of a Supply Chain to understand how to improve the effectiveness of the Supply Chain to create more value for customers.

What is supply chain analysis?

Supply chain analysis is the process of evaluating every stage of a supply chain starting from the time the business acquires raw materials or supplies from its suppliers to the delivery of final products to the customers.

The purpose of the analysis is to determine which part of the supply chain can be improved or shortened to deliver the product more quickly and efficiently to the customers.

What are supply chain analytics and it's different types?

Each of these supply chain analytics can increase the overall efficiency of business operations, which can lead to sizable cost savings.

Descriptive Analytics focuses on understanding what happened in the past by analyzing historical data. It can provide insights on key performance metrics, such as inventory levels, lead times, and delivery performance. Descriptive analytics can help

identify patterns and trends in past supply chain operations, allowing organizations to make informed decisions about future strategies.

Diagnostic Analytics goes beyond descriptive analytics by identifying the root causes of supply chain issues. By analyzing data from different sources, such as suppliers, logistics providers, and customers, organizations can identify the factors that contribute to delays, disruptions, or quality issues in their supply chain. This can help them take corrective actions to prevent similar problems from happening in the future.

Predictive Analytics uses statistical models and machine learning algorithms to forecast future supply chain events. By analyzing historical data, organizations can identify patterns and trends that can help predict demand, inventory levels, and delivery performance. This can help organizations optimize their supply chain operations, reduce costs, and improve customer satisfaction.

Prescriptive Analytics takes predictive analytics one step further by providing recommendations on how to optimize supply chain operations. By using optimization algorithms and simulations, prescriptive analytics can help organizations identify the best course of action to improve supply chain performance. This can help organizations make better decisions and improve their overall supply chain efficiency.

How to conduct supply chain analysis

The above analytics should be used when conducting supply chain analysis. The basic steps of an analysis are:

- Define your objectives.
- Research the market.
- Conduct in-depth supplier analysis.
- Identify key market indicators
- Pull together your findings and outline final suggestions - I'd recommend taking a look at using SharpCloud as a visual presentation tool.

DataSet

Here is a dataset we collected from a Fashion and Beauty startup. The dataset is based on the supply chain of Makeup products. Below are all the features in the dataset:

- Product Type
- Stock Keeping Unit (SKU): They’re like special codes that help companies keep track of all the different things they have for sale
- Price

- Availability
- Number of products sold
- Revenue generated
- Customer demographics
- Stock levels
- Lead times
- Order quantities
- Shipping times
- Shipping carriers
- Shipping costs
- Supplier name
- Location
- Lead time
- Production volumes
- Manufacturing lead time
- Manufacturing costs
- Inspection results
- Defect rates
- Transportation modes
- Routes
- Costs

Business Case Questions

1. Product type and Price: analyzing the Supply Chain by looking at the relationship between the price of the products and the revenue generated by them.
2. What are the percentages of sales generated by the respective products?
3. What is the total revenue generated by the various shipping carriers?
4. What is Revenue generated by SKU (Hint: using a Line Chart to represent this)
5. What are the various Stock Levels by SKU: Stock levels refer to the number of products a store or business has in its inventory. Now let's have a look at the stock levels of each SKU (Hint: Use a line chart for this too)
6. What are the various shipping costs by Carriers?
7. Show the cost distribution by various transport mode
8. What are the average defect rates by the various Product types and transportation mode?