**Milestone – 1 (Market Research Phase):**

**Scenario**: A Fast-Moving Consumer Goods (FMCG) company has entered the instant noodles business two years back. Their higher management has notices that there is a miss match in the demand and supply. Where the demand is high, supply is low and vice-versa which as a result as a loss in inventory cost and ultimately loss to the company. Hence, the higher management wants to optimize the supply quantity in each warehouse in entire country.

**Goal & Objective:** The objective of this exercise is to build a model, using historical data that will determine an optimum weight of the product to be shipped each time from the respective warehouse.

Probable business impact of each independent feature:

* **WH\_capacity\_size** (Capacity of the warehouse for production of product.): Warehouse capacity will help in assessing the quantity of product that can be stored and shipped, which can help in controlling the product shipment to various sources.
* **Location\_type** (Location of the Warehouse): Determines in target audience (urban/rural).
* **Num\_refill\_req\_l3m**(Refilling request received by the warehouse in last 3 months): This feature will give an idea of how much the demand for a product is. Which can help in shipping the product from factory to warehouse efficiently.
* **Transport\_issue\_l1y** (No. of transport issued for warehouse in last 1 year): Increase in transportation issue will decrease the efficient supply of product and may lead to loss in the long run.
* **Competitor in market** (No. of competitor in the market): This feature will help in assessing the potential competitors in the zone or region, which should be considered when shipping the products to market/retail shops. Different product expansion strategies can be employed depending on the number of competitors.
* **Retail\_shop\_number** (Number of retail shop who sell noodles produced by the warehouse): Important feature which can give an insight about the demand of the product. Which can help in storing and shipping product more accurately.
* **Dist\_from\_hub** (distance from the warehouse to production hub): Helps in determining the time to transport the product, helping in meeting the demand of the product in the region/zone.
* **Storage\_issue\_reported\_l3m** (storage issues reported by warehouse in last 3months.): Higher storage issue may lead to loss in product quality and potential lead to bad customer satisfaction.
* **Workers\_num** (no. workers in the warehouse): Man power available to maintain and handle the product shipments, decrease in this may lead to delay in shipment.
* **Electric\_supply** (Does the warehouse having proper electric supply along with some power backup):
* **Distuributer\_num** (No. of distributor who works between warehouse and retail shops): Increase in the number of distributers helps in quick distribution of product to various end points.
* **Flood\_impacted** (Is warehouse is in flood impacted area or not): Helps in having a back up plan during floods ensuring product is safe.

Benefits Of Analysing the Data:

There are many benefits to analysing supply chain data. Some of the most important benefits include:

* **Improved visibility:** Can help in gaining a better understanding of your supply chain, from the suppliers who provide them with raw materials to the customers who purchase the finished goods. This improved visibility can help identifying the areas where you can improve efficiency, reduce costs, and improve customer satisfaction.
* **Increased agility:** Can help in making better decisions more quickly. For example, tracking demand in real time, can help in adjusting production schedule accordingly to avoid stockouts or overstocks. This increased agility can help to respond more quickly to changes in the market, which can give a competitive advantage.
* **Reduced costs**: Data analytics can help in identifying areas where cost reducing can be done. For example, reduce transportation costs, or improve inventory management.
* **Improved customer satisfaction:** Data analytics can help in improving customer satisfaction by providing the insights into their needs and preferences.
* **Reduced risk:** Data analytics can help in identifying and mitigating risks in your supply chain.
* **Improved decision-making:** Data analytics can help you in making better decisions about the supply chain. For example, which suppliers to use, how much inventory to keep on hand, and how to optimize your transportation network.

Overall, data analytics can provide a wide range of benefits for businesses. By analysing supply chain data, can improve visibility, agility, costs, customer satisfaction, and compliance. By analysing supply chain data, can gain a competitive advantage and improve business performance.

Missing features that can help with the analysis based on business logic:

**Price Analysis**: Including price-related data such as the average price per packet or cup, price fluctuations over time, and price comparisons across different brands can help assess the impact of pricing strategies on sales and market share.

**Route Optimization:** Implementing route optimization algorithms can help determine the most efficient shipping routes based on factors such as distance, traffic conditions, and delivery schedules. This feature can minimize transportation costs, reduce delivery times, and improve overall supply chain efficiency.

Best way to collect data for the suggested features?

* **Implement Tracking and Monitoring**: Implement shipment tracking and monitoring mechanisms. This can include using technologies such as GPS tracking devices, barcode scanning systems, or RFID (Radio Frequency Identification) tags to capture real-time shipment data. This data can help track the movement of goods, identify delays or disruptions, and evaluate performance.
* **Surveys and Interviews**: Conduct surveys or interviews with key stakeholders involved in the shipment process. This can include logistics managers, warehouse personnel, carriers, and drivers. Gather their insights, experiences, and feedback on factors that impact shipment optimization, such as delivery challenges, route preferences, or potential areas for improvement.
* **Utilize Internal Systems:** Leverage data from your existing internal systems, such as enterprise resource planning (ERP) systems, warehouse management systems (WMS), transportation management systems (TMS), and order management systems (OMS). These systems typically capture data related to shipments, inventory, orders, and logistics operations.

THANK YOU