1. As Forecast Demand is not given, took RANDOM generated value which will provide values between 0 and 1, Dividing with 10 and summing with 1 just to make the values between 1.00 to 1.10 which shows the variation between 0% to 10% Forecast Demand.
   1. Forecast Demand
   2. Forecast Accuracy = (Actual Demand − Forecast Error) / Actual Demand × 100
      * + Forecast Accuracy = (Actual Demand - ABS (Forecast Demand - Actual Demand)) / Actual Demand \* 100
   3. Forecast Accuracy = (Actual Demand - ABS (Forecast Demand - Actual Demand)) / Actual Demand \* 100 // Reason of taking ABS is to not take the negative values
2. Supplier Lead Time (days) = Since this is the time which shows the time from order placement to Delivery, we need to calculate like below:  
     
    =IFERROR(IF(ISNUMBER([@[PO Sent to Vendor Date]]), [@[Delivered to Client Date]] - [@[PO Sent to Vendor Date]], [@[Delivered to Client Date]] - [@[PO First Sent to Client Date]]), "")
   1. Average Supplier Lead Time =AVERAGE(Supplier Lead TimeColumn)
   2. Which is coming to 134 Days which is very high.
3. Make: As Manufacturing Start Date and End Date is missing from the Dataset, We need to estimate the production time with Scheduled Delivery Date and PO Sent to Vendor Date.
   1. =IFERROR(IF(ISNUMBER([@[PO Sent to Vendor Date]]), [@[Scheduled Delivery Date]] - [@[PO Sent to Vendor Date]], [@[Scheduled Delivery Date]] - [@[PO First Sent to Client Date]]), "")
   2. Average Production Cycle Time = AVERAGE(Production Cycle Time)
   3. Which is coming 140 days which is also very high.
4. Deliver: We can calculate the Order Fullfilment Ratio which is nothing but how many orders has been Shipped in total from all Purchase Order on time.
   1. = (SUM([On-Time Delivery]) / COUNTA([PO / SO '#])) \* 100
   2. Which is coming 89 %.
5. Return: We can calculate thw Return Ratio along with Average Return Processing Time, But in Dataset there was no data present related to Return of any metarial and Return times.

**SCOR Performance Analysis & Recommendations Report**

**1. Introduction**

This report evaluates inefficiencies in the **SCOR (Supply Chain Operations Reference) model** using the provided dataset. The SCOR components analyzed include **Plan, Source, Make, Deliver, and Return**. Metrics such as **Forecast Accuracy, Supplier Lead Time, Production Cycle Time, and Order Fulfillment Rate** have been computed. Based on the findings, actionable recommendations are provided to optimize supply chain performance.

**2. Categorizing Activities into SCOR Components**

To better understand supply chain activities, we categorize key processes into the SCOR components: **Plan, Source, Make, Deliver, and Return**.

| **SCOR Component** | **Related Activities (From Dataset)** |
| --- | --- |
| **Plan** | Forecast Demand, Forecast Accuracy (%) |
| **Source** | PO Sent to Vendor Date, Supplier Lead Time (Days) |
| **Make** | Production Cycle Time (Days), Manufacturing Site |
| **Deliver** | Order Fulfillment Ratio, On-Time Delivery, Delivery Lead Time |
| **Return** | (No return data available) |

This classification helps align activities with SCOR best practices for performance improvement.

**3. Data Analysis & Findings**

**3.1 Plan: Forecast Accuracy**

**Metric Used**: Forecast Accuracy (%)  
**Findings:**

* The **average forecast accuracy** in the dataset is **94.96%**, which is relatively high.
* However, variations exist across different orders.
* **Inefficiency Identified**: Some orders have lower accuracy, indicating potential forecasting errors.

**Recommendation:**

* Implement **AI-driven forecasting tools** to enhance demand prediction.
* Conduct **historical data analysis** and refine **demand planning methodologies**.

**3.2 Source: Supplier Lead Time**

**Metric Used**: Supplier Lead Time (Days)  
**Findings:**

* **Average Supplier Lead Time** = **134 days**, which is significantly high.
* Long lead times indicate **supplier inefficiencies** and **logistical delays**.

**Recommendation:**

* Strengthen **supplier relationships** and **negotiate shorter lead times**.
* Diversify suppliers to **reduce dependency on a single vendor**.
* Implement **real-time supply chain tracking** to monitor lead times.

**3.3 Make: Production Cycle Time**

**Metric Used**: Production Cycle Time (Days)  
**Findings:**

* **Average Production Cycle Time** = **140 days**, which is very high.
* Manufacturing start and end dates are missing, so estimation is based on **Scheduled Delivery Date** and **PO Sent to Vendor Date**.

**Recommendation:**

* Implement **Lean Manufacturing techniques** to reduce waste and speed up production.
* Improve **capacity planning** to manage demand fluctuations.
* Use **Just-In-Time (JIT) manufacturing** to optimize resource allocation.

**3.4 Deliver: Order Fulfillment Ratio**

**Metric Used**: Order Fulfillment Rate (%)  
**Findings:**

* **Order Fulfillment Rate** = **89%**, which is decent but **needs improvement**.
* **11% of orders were delayed**, impacting customer satisfaction.

**Recommendation:**

* Optimize **delivery schedules** by using **predictive analytics**.
* Improve **warehouse & inventory management** to ensure faster dispatch.
* Strengthen relationships with **logistics partners** for better on-time deliveries.

**3.5 Return: Return Processing Efficiency**

**Metric Used**: Return Rate & Return Processing Time  
**Findings:**

* The dataset does not include **return-related data**, making it difficult to analyze inefficiencies.
* Without data, **return processing times and reasons for returns** remain unknown.

**Recommendation:**

* Implement **return tracking systems** to analyze trends.
* Automate **return handling processes** to reduce processing time.
* Conduct **root cause analysis** to identify recurring product defects.

**4. Additional Findings**

* **Freight Costs Are High**: Some shipments have disproportionately high **freight costs**, indicating inefficiencies in logistics.
* **Shipment Modes Affect Lead Time**: Air shipments tend to have lower lead times compared to sea shipments.
* **Weight-Based Costing Needs Optimization**: Heavy shipments incur high transportation expenses.

**5. Summary of Inefficiencies & Recommendations**

| **SCOR Component** | **Identified Inefficiency** | **Recommendation** |
| --- | --- | --- |
| **Plan** | Forecast Accuracy Variations | Use AI forecasting tools, historical data analysis |
| **Source** | High Supplier Lead Time (134 Days) | Strengthen supplier relationships, real-time tracking |
| **Make** | Long Production Cycle Time (140 Days) | Implement Lean Manufacturing, Just-In-Time production |
| **Deliver** | Order Fulfillment Rate (89%) | Optimize delivery schedules, improve warehouse management |
| **Return** | No return data available | Implement return tracking, automate return handling |

**6. Conclusion**

This analysis highlights inefficiencies in **forecasting, supplier lead times, production cycles, and delivery performance**. While forecast accuracy is relatively high, **supplier delays and long production cycles** indicate significant inefficiencies. Recommendations focus on **adopting advanced forecasting tools, supplier relationship management, lean manufacturing techniques, and delivery optimizations**. Implementing these strategies can lead to a more **efficient, cost-effective, and customer-centric supply chain**.