**Week 1, Day 3: Key Metrics and KPIs in Supply Chain**

**1. Fill Rate**

* **Why it matters:** High fill rate = better customer satisfaction and fewer backorders.
* **Example:**  
  If you received 100 orders and delivered 90 on time and in full, your fill rate would be:
* **Goal:** Aim for a fill rate of **95%+** to maintain strong customer satisfaction.

**Types of Fill Rates:**

* **Line Fill Rate:** Percentage of order lines delivered in full.
* **Order Fill Rate:** Percentage of total orders fulfilled without any backorders.
* **Case Fill Rate:** Percentage of cases delivered versus cases ordered.

**2. Inventory Turnover**

* **Why it matters:** High turnover = efficient inventory use, but too high = risk of stockouts.
* **Example:**  
  If COGS = ₹5,00,000 and average inventory = ₹1,00,000:
* **Goal:** Ideal turnover = **4–8 times/year** depending on industry.
* **Low turnover** = excess inventory = higher holding costs.
* **High turnover** = possible stockouts or understocking.

**Advanced Insight:**

* For perishable goods → higher turnover = better.
* For durable goods → moderate turnover = more stable supply chain.

**3. Lead Time**

* **Why it matters:** Shorter lead time = better responsiveness to customer demand.
* **Example:**  
  Order placed on March 1, delivered on March 10:
* **Goal:** Reduce lead time through:  
  Local sourcing  
  Faster transportation  
  Automation in order processing

**Types of Lead Time:**

* **Order Lead Time** – Time from order placement to delivery.
* **Manufacturing Lead Time** – Time to produce the product.
* **Supplier Lead Time** – Time from supplier order to delivery.

**4. OTIF (On Time In Full)**

* **Why it matters:** Measures both speed and accuracy of delivery.
* **Example:**  
  Out of 100 orders, 85 were delivered on time and complete:
* **Goal:** Achieve OTIF of **95%+** to meet customer expectations.
* **Challenges:**  
  Incorrect order picking  
  Delays in transportation  
  Inventory mismatch

**How to Improve:**  
Better demand forecasting  
Inventory visibility  
Supplier performance tracking

**5. COGS (Cost of Goods Sold)**

* **Why it matters:** Higher COGS reduces profit margins.
* **Example:**  
  Opening inventory = ₹50,000, Purchases = ₹1,00,000, Closing inventory = ₹30,000:
* **Goal:** Keep COGS low by:  
  Better supplier negotiation  
  Bulk purchasing discounts  
  Reducing production waste

**6. Profit Margin**

* **Why it matters:** Higher profit margin = more efficient cost control.
* **Example:**  
  Revenue = ₹2,00,000, Net profit = ₹40,000:
* **Goal:** Profit margin of **15%+** is considered healthy for most industries.

**How to Improve:**  
Reduce COGS  
Optimize inventory levels  
Improve supplier contracts

**🚀 Why These Metrics Matter Together**

* **High fill rate** + **High inventory turnover** = Efficient supply chain
* **Low lead time** + **High OTIF** = Customer satisfaction
* **Low COGS** + **High profit margin** = Financial health

**Advanced Supply Chain KPIs**

**7. Perfect Order Rate**

**Measures:** The percentage of orders delivered without any errors (on time, correct product, correct quantity).

* **Formula:**
* **Example:**  
  Out of 500 orders, 460 were delivered on time, in full, and error-free:

Goal: **95%+**  
High perfect order rate = strong supply chain execution.

**How to Improve:**  
Better order picking and packing systems  
Enhanced inventory visibility  
Supplier reliability tracking

**8. Cash-to-Cash Cycle Time**

**Measures:** The time it takes to convert resources into cash flows from sales.

* **Formula:**
* **Example:**
* Inventory days = 30
* Receivables days = 40
* Payables days = 35

Goal: Lower is better → faster cash recovery = stronger working capital.

**How to Improve:**  
Reduce receivables time (early payment discounts)  
Extend supplier payment terms  
Improve inventory turnover

**9. Backorder Rate**

**Measures:** The percentage of orders that couldn’t be fulfilled due to stockouts.

* **Formula:**
* **Example:**  
  Out of 2000 orders, 50 were backorders:

Goal: Keep it below **2%** for strong inventory management.

**How to Reduce:**  
Better demand forecasting  
Safety stock strategy  
Stronger supplier contracts

**10. Inventory Accuracy**

**Measures:** How accurately inventory records match physical stock.

* **Formula:**
* **Example:**  
  Recorded inventory = 500 units, Physical count = 480 units:

Goal: **98%+** accuracy = reduced operational errors.

**How to Improve:**  
Use barcodes and RFID  
Conduct regular cycle counts  
Improve warehouse organization

**11. Inventory Days of Supply (DOS)**

**Measures:** How long the current inventory will last at the current consumption rate.

* **Formula:**
* **Example:**  
  Average inventory = ₹1,00,000  
  COGS per day = ₹5,000

Goal: Maintain DOS within industry benchmark.

**How to Improve:**  
Optimize reorder points  
Improve supplier lead time  
Increase forecast accuracy

**12. Supplier On-Time Delivery Rate**

**Measures:** Percentage of deliveries received from suppliers on time.

* **Formula:**
* **Example:**  
  Out of 100 deliveries, 90 were on time:

Goal: **95%+**

**How to Improve:**  
Strengthen supplier contracts  
Penalize late deliveries  
Diversify suppliers

**13. Freight Cost Per Unit**

**Measures:** The average cost to ship a single unit of product.

* **Formula:**
* **Example:**  
  Total freight cost = ₹50,000  
  Total units shipped = 10,000

Goal: Reduce through better route planning and bulk shipments.

**How to Reduce:**  
Use regional warehouses  
Consolidate shipments  
Negotiate better shipping rates

**14. Return Rate**

**Measures:** Percentage of products returned by customers.

* **Formula:**
* **Example:**  
  Out of 1000 units sold, 50 were returned:

Goal: Keep return rate under **2–3%** (depending on industry).

**How to Improve:**  
Better quality control  
Clearer product descriptions  
Stronger packaging

**15. Supply Chain Cost as % of Revenue**

**Measures:** Total supply chain costs relative to total revenue.

* **Formula:**
* **Example:**  
  Total supply chain cost = ₹20,00,000  
  Total revenue = ₹1,00,00,000

Goal: Keep it under **10–15%** for efficient operations.

**How to Improve:**  
Reduce logistics and warehousing costs  
Streamline order fulfillment  
Use cost-effective shipping options

**16. Days Sales Outstanding (DSO)**

**Measures:** How quickly sales are converted into cash.

* **Formula:**
* **Example:**  
  Accounts receivable = ₹2,00,000  
  Annual sales = ₹30,00,000

Goal: **30 days or less** for healthy cash flow.

**How to Improve:**  
Offer early payment discounts  
Automate invoicing  
Improve credit screening

**17. Forecast Accuracy**

**Measures:** How closely the demand forecast matches actual sales.

* **Formula:**
* **Example:**  
  Forecasted demand = 950 units  
  Actual demand = 1000 units

Goal: Maintain forecast accuracy above **95%**.

**How to Improve:**  
Use AI-based forecasting models  
Adjust for seasonality  
Review forecast weekly

Ref:

* 1. <https://dclcorp.com/blog/supply-chain/supply-chain-metrics/>
  2. <https://www.netsuite.com/portal/resource/articles/erp/supply-chain-kpis-metrics.shtml>
  3. <https://www.commport.com/top-30-supply-chain-metrics-and-kpis-you-should-be-monitoring/>