SCM KPI —---------->

A. Customer Service Metrics:

I. **Customer Order Cycle Time**
Formula: `Customer Order Cycle Time = Delivery Date - Order Date`

- **Business Perspective:** Shorter cycle times improve customer satisfaction and reduce the time customers wait for their orders, leading to higher repeat business and positive reviews.

II. **Customer Satisfaction Score**
Method: Survey customers to rate their satisfaction on a scale, then calculate the average score.

- **Business Perspective:** High satisfaction scores indicate positive customer experiences, leading to increased loyalty, repeat business, and a stronger brand reputation.

III. **Net Promoter Score (NPS)**
Method: Survey customers on how likely they are to recommend the company on a scale from 0 to 10.
Formula: `NPS = % Promoters (9-10) - % Detractors (0-6)`

- **Business Perspective:** High NPS indicates strong customer loyalty and positive word-of-mouth, which can drive new customer acquisition and business growth.

IV. **Return Rate**
Formula: `Return Rate = (Number of Returned Items / Total Items Sold) * 100`

- **Business Perspective:** Low return rates suggest high product quality and customer satisfaction, reducing costs associated with processing returns and improving profitability.

B. Inventory Management Metrics:

V. **Carrying Cost of Inventory**
Formula: `Carrying Cost = Inventory Holding Cost + Cost of Capital + Storage Costs + Depreciation/Obsolescence Costs`

- **Business Perspective:** Understanding carrying costs helps businesses manage inventory levels efficiently, reducing excess inventory and associated costs.

VI. **Days Sales of Inventory (DSI)**
Formula: `DSI = (Ending Inventory / Cost of Goods Sold) * 365`

- **Business Perspective:** Lower DSI suggests faster inventory turnover, which improves cash flow and reduces holding costs, while high DSI may indicate overstocking or slow-moving inventory.

VII. **Inventory Shrinkage**
Formula: `Inventory Shrinkage = (Book Inventory - Physical Inventory) / Book Inventory * 100`

- **Business Perspective:** Low shrinkage rates indicate effective inventory management and security measures, reducing losses due to theft, damage, or errors, thereby protecting profitability.

VIII. **Inventory Turnover**
Formula: `Inventory Turnover = Cost of Goods Sold / Average Inventory`

- **Business Perspective:** High inventory turnover indicates efficient use of inventory, reducing holding costs and the risk of obsolescence, while ensuring product availability.

IX. **Stockout Rate**
Formula: `Stockout Rate = (Number of Stockouts / Total Number of Order Cycles) * 100`

- **Business Perspective:** Low stockout rates are crucial for maintaining customer satisfaction and preventing lost sales, which directly affect revenue and market reputation.

C. Order Management Metrics:

X. **Order Accuracy Rate**
Formula: `Order Accuracy Rate = (Number of Accurate Orders / Total Number of Orders) * 100`

- **Business Perspective:** High order accuracy improves customer satisfaction, reduces returns and complaints, and lowers additional shipping costs for correcting errors.

XI. **Order Cycle Time**
Formula: `Order Cycle Time = Order Delivery Date - Order Placement Date`

- **Business Perspective:** Shorter order cycle times enhance customer satisfaction by ensuring quick delivery, which can lead to repeat business and competitive advantage.

XII. **Order Fill Rate**
Formula: `Order Fill Rate = (Number of Orders Filled Completely on First Shipment / Total Number of Orders) * 100`

- **Business Perspective:** High fill rates indicate efficient inventory management and supply chain processes, reducing backorders and enhancing customer trust and loyalty.

XIII. **Perfect Order Rate**
Formula: `Perfect Order Rate = (Number of Perfect Orders / Total Number of Orders) * 100`

- **Business Perspective:** This metric reflects overall supply chain performance. High perfect order rates mean fewer errors, lower costs, and higher customer satisfaction.

D. Production and Manufacturing Metrics:

XIV. **Downtime in Production**
Formula: `Downtime = Total Time Production is Halted`

- **Business Perspective:** Reducing downtime increases production efficiency and output, lowering costs and improving profitability.

XV. **Manufacturing Cycle Time**
Formula: `Manufacturing Cycle Time = Process Time + Inspection Time + Move Time`

- **Business Perspective:** Shorter cycle times enhance production efficiency and responsiveness, improving time-to-market and reducing costs.

XVI. **Overall Equipment Effectiveness (OEE)**
Formula: `OEE = Availability * Performance * Quality`

- **Business Perspective:** High OEE indicates optimal utilization of equipment, minimizing downtime and defects, which enhances productivity and reduces costs.

XVII. **Production Efficiency**
Formula: `Production Efficiency = (Actual Output / Standard Output) * 100`

- **Business Perspective:** High efficiency rates reduce production costs and increase output, improving overall profitability and competitiveness.

XVIII. **Yield**
Formula: `Yield = (Good Units Produced / Total Units Produced) * 100`

- **Business Perspective:** High yield indicates efficient production processes with minimal waste, improving cost efficiency and product quality.

E. Supplier Performance Metrics:

XIX. **Cost of Goods Sold (COGS)**
Formula: `COGS = Beginning Inventory + Purchases During the Period - Ending Inventory`

- **Business Perspective:** Understanding COGS helps in pricing strategies and profitability analysis, ensuring that sales prices cover production costs and contribute to profit margins.

XX. **Supplier Defect Rate**
Formula: `Supplier Defect Rate = (Number of Defective Items / Total Items Received) * 100`

- **Business Perspective:** Low defect rates reduce rework and quality control costs, ensuring higher product quality and customer satisfaction.

XXI. **Supplier Lead Time**
Formula: `Supplier Lead Time = Delivery Date - Order Date`

- **Business Perspective:** Shorter lead times from suppliers improve inventory turnover and responsiveness, reducing the need for excess inventory and associated carrying costs.

XXII. **Supplier Reliability**
Formula: `Supplier Reliability = (Number of Reliable Deliveries / Total Deliveries) * 100`

- **Business Perspective:** Reliable suppliers ensure consistent supply chain operations, reducing the risk of disruptions and enabling better planning and forecasting.

F. Transportation and Logistics Metrics:

XXIII. **Delivery Performance**
Formula: `Delivery Performance = (Number of Deliveries on Time and in Full / Total Deliveries) * 100`

- **Business Perspective:** High delivery performance indicates reliability and efficiency in the delivery process, enhancing customer satisfaction and reducing costs associated with delays and incomplete shipments.

XXIV. **Freight Cost per Unit**
Formula: `Freight Cost per Unit = Total Freight Cost / Total Units Shipped`

- **Business Perspective:** Monitoring freight costs helps control transportation expenses, which can significantly impact overall supply chain costs and profitability.

XXV. **On-Time Delivery**
Formula: `On-Time Delivery = (Number of On-Time Deliveries / Total Deliveries) * 100`

- **Business Perspective:** High on-time delivery rates are crucial for customer satisfaction and retention, as timely deliveries meet customer expectations and enhance trust.

XXVI. **Transportation Cost as a Percentage of Sales**
Formula: `Transportation Cost % of Sales = (Total Transportation Costs / Total Sales) * 100`

- **Business Perspective:** Keeping transportation costs as a low percentage of sales helps maintain profit margins and ensures competitive pricing.

XXVII. **Transportation Lead Time**
Formula: `Transportation Lead Time = Delivery Date - Shipment Date`

- **Business Perspective:** Shorter lead times improve supply chain responsiveness and agility, allowing companies to meet customer demands more effectively.

G. Warehouse Management Metrics:

XXVIII. **Inventory Accuracy**
Formula: `Inventory Accuracy = (Accurate Inventory Count / Total Inventory Count) * 100`

- **Business Perspective:** High inventory accuracy ensures reliable data for planning and decision-making, reducing the risk of stockouts and excess inventory.

XXIX. **Order Picking Time**
Formula: `Order Picking Time = Time Taken to Pick an Order`

- **Business Perspective:** Reducing picking time increases productivity, allowing more orders to be processed in less time, which can enhance customer satisfaction and reduce labor costs.

XXX. **Picking Accuracy**
Formula: `Picking Accuracy = (Number of Correct Items Picked / Total Number of Items Picked) * 100`
- **Business Perspective:** High picking accuracy minimizes order errors, reducing returns and rework costs, while improving customer satisfaction and operational efficiency.

XXXI. **Storage Utilization**
Formula: `Storage Utilization = (Storage Space Used / Total Storage Space Available) * 100`
- **Business Perspective:** High utilization rates indicate efficient use of storage space, reducing the need for additional warehousing and associated costs.

XXXII. **Warehouse Utilization**
Formula: `Warehouse Utilization = (Total Space Used / Total Space Available) * 100`
- **Business Perspective:** High utilization rates indicate efficient use of warehouse space, reducing the need for additional storage facilities and associated costs.

H. Financial Metrics:

XXXIII. **Cash-to-Cash Cycle Time**
Formula: `Cash-to-Cash Cycle Time = Days Inventory Outstanding + Days Sales Outstanding - Days Payables Outstanding`
- **Business Perspective:** Shorter cash-to-cash cycle times improve liquidity and cash flow, enabling better investment and operational flexibility.

XXXIV. **Cost of Goods Sold (COGS)**
Formula: `COGS = Beginning Inventory + Purchases During the Period - Ending Inventory`
- **Business Perspective:** Understanding COGS helps in pricing strategies and profitability analysis, ensuring that sales prices cover production costs and contribute to profit margins.

XXXV. **Gross Margin Return on Investment (GMROI)**
Formula: `GMROI = Gross Profit / Average Inventory Cost`
- **Business Perspective:** High GMROI indicates effective inventory management and profitability, as it measures how much profit is earned for each dollar invested in inventory.

XXXVI. **Return on Assets (ROA)**
Formula: `ROA = (Net Income / Total Assets) * 100`
- **Business Perspective:** High ROA indicates efficient use of assets to generate profits, reflecting overall operational effectiveness and profitability.

XXXVII. **Return on Investment (ROI)**
Formula: `ROI = (Net Profit / Total Investment) * 100`
- **Business Perspective:** High ROI demonstrates the profitability of investments, aiding in decision-making for future investments and business strategies.

XXXVIII. **Working Capital Turnover**
Formula: `Working Capital Turnover = Net Sales / Working Capital`
- **Business Perspective:** High working capital turnover indicates efficient use of working capital to generate sales, improving liquidity and operational efficiency.

I. Sustainability Metrics:

XXXIX. **Carbon Footprint**
Method: Calculate total greenhouse gas emissions from operations, measured in CO2 equivalents.
- **Business Perspective:** Reducing carbon footprint demonstrates commitment to sustainability, enhancing brand reputation and compliance with environmental regulations.

XL. **Energy Consumption**
Method: Measure total energy used in operations, typically in kilowatt-hours (kWh).
- **Business Perspective:** Lower energy consumption reduces operational costs and environmental impact, contributing to sustainability goals and cost efficiency.