

Supply Chain Management

1



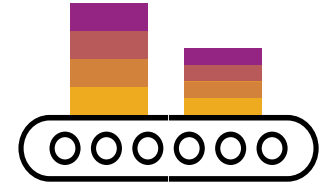
Planning

2



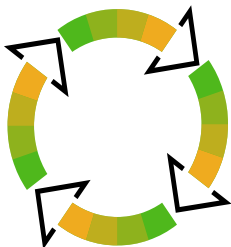
Logistics management

3



Manufacturing technology

4



Product lifecycle management

5



Enterprise asset management

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Supply chain procurement

Supply chain management



Agenda

❖ 1. Project Statement

❖ 2. Research Question

❖ 3. Dataset Overview

❖ 4. Methodology

❖ 5. Analysis & Finding

❖ 6. Recommendation

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Project Statement

- HOW CAN THE COMPANY **REDUCE** OVERALL **SUPPLY CHAIN COSTS** AND IMPROVE PRODUCT **AVAILABILITY** WHILE MAINTAINING **HIGH** CUSTOMER SATISFACTION?

Research Question

OVERVIEW DASHBOARD

1. WHAT IS THE TOTAL REVENUE, PRODUCTS SOLD, TOTAL COST, STOCK LEVEL, AND AVERAGE PROFIT MARGIN?
2. HOW DOES REVENUE VARY BY CUSTOMER DEMOGRAPHICS (FEMALE, MALE, NON-BINARY, UNKNOWN)?
3. WHAT IS THE REVENUE DISTRIBUTION BY PRODUCT TYPE (SKINCARE, HAIRCARE, COSMETICS)?
4. WHICH SHIPPING CARRIERS CONTRIBUTE THE MOST REVENUE?
5. WHAT IS THE DEFECT RATE BY PRODUCT TYPE?
6. WHICH SKUS GENERATE THE HIGHEST REVENUE?
7. WHAT IS THE AVERAGE PROFIT MARGIN BY SUPPLIER?

PRODUCT DASHBOARD

8. WHAT ARE THE ORDER QUANTITIES FOR EACH SKU?
9. WHAT IS THE STOCK LEVEL OF EACH SKU?
10. WHICH SKUS DRIVE THE MOST REVENUE?
11. WHAT IS THE DEFECT RATE BY SHIPPING CARRIER?
12. WHAT IS THE PROFIT MARGIN BY PRODUCT TYPE?
13. WHAT IS THE INVENTORY SPLIT BY PRODUCT TYPE (ORDER QUANTITY VS STOCK LEVEL)?
14. WHAT IS THE LEAD TIME BY SUPPLY CARRIERS

SUPPLIER DASHBOARD

15. WHAT IS THE AVERAGE LEAD TIME, SHIPPING COST, AND DEFECT RATE FOR EACH SUPPLIER?
16. HOW DOES SUPPLIER PERFORMANCE VARY BY LOCATION (BANGALORE, CHENNAI, DELHI, KOLKATA, MUMBAI)?
17. WHICH SUPPLIERS HAVE THE LONGEST AND SHORTEST LEAD TIMES?
18. WHAT ARE THE SHIPPING COSTS BY TRANSPORT MODE (AIR, ROAD, RAIL, SEA)?
19. WHAT IS THE DEFECT RATE BY TRANSPORT MODE?
20. WHAT IS THE STOCK LEVEL AND ORDER QUANTITY ACROSS DIFFERENT LOCATIONS?



Dataset Overview

1. SKU (ID)	STR
2. AVAILABILITY	STR
3. PRODUCTS SOLD	STR
4. REVENUE	FLOAT
5. CUSTOMER DEMOGRAPHICS	STR
6. STOCK LEVELS	INT
7. LEAD TIMES	INT
8. ORDER QUANTITIES	INT
9. SHIPPING TIMES	TIME
10. SHIPPING CARRIERS	STR
11. SHIPPING COSTS	FLOAT
12. SUPPLIER NAME	STR
13. LOCATION	STR
14. LEAD TIME	TIME
15. MANUFACTURING LEAD TIME	TIME
16. MFG COSTS	FLOAT
17. INSPECTION RESULTS	BINARY
18. DEFECT RATES	FLOAT
19. TRANSPORTATION MODES	STR
20. ROUTES	STR
21. COSTS	FLOAT
22. PROFIT MARGIN	FLOAT
23. PROFIT MARGIN %	FLOAT



Methodology

- ✓ POWER POINT FOR DATA CLEANING
- ✓ POWER BI FOR DASHBOARDS

Dashboard -1 Overview



Insight and Finding

◆ KPIS (TOP ROW CARDS)

- REVENUE: \$577.60K
- PRODUCTS SOLD: 46K
- TOTAL COST: \$58.21K
- STOCK LEVEL: 5K
- AVG PROFIT MARGIN: 5.19K

◆ REVENUE BY CUSTOMER DEMOGRAPHICS (DONUT CHART)

OBSERVATION:

- UNKNOWN (29.97%) LEADS REVENUE SHARE, FOLLOWED BY FEMALE (27.96%), MALE (21.92%), AND NON-BINARY (20.15%).

TAKEAWAY:

- CONSIDER IMPROVING CUSTOMER DATA COLLECTION TO REDUCE THE "UNKNOWN" SEGMENT.
- FEMALE CUSTOMERS ARE A KEY SEGMENT – TARGET PROMOTIONS ACCORDINGLY.

Insight and Finding

◆ REVENUE BY PRODUCT TYPE (BAR CHART)

OBSERVATION:

- SKINCARE IS THE TOP REVENUE-GENERATING CATEGORY (\$0.24M), FOLLOWED BY HAIRCARE (\$0.17M) AND COSMETICS (\$0.16M).

TAKEAWAY:

- PRIORITIZE MARKETING AND STOCK ALLOCATION FOR SKINCARE PRODUCTS.
- EXPLORE BUNDLING OR PROMOTIONS FOR LOWER-PERFORMING CATEGORIES.

◆ REVENUE BY SHIPPING CARRIERS (BAR CHART)

OBSERVATION:

- CARRIER B LEADS WITH \$0.25M REVENUE, INDICATING MORE HIGH-VALUE DELIVERIES.
- CARRIER A IS THE LOWEST WITH \$0.14M.

TAKEAWAY:

- ASSESS PERFORMANCE AND COST-EFFECTIVENESS OF CARRIER B.
- EVALUATE IF CARRIER A IS IMPACTING DELIVERY SATISFACTION OR SALES.

Insight and Finding

◆ DEFECT RATE BY PRODUCT TYPE (DONUT CHART)

OBSERVATION:

- HAIRCARE HAS THE HIGHEST DEFECT RATE (36.86%), FOLLOWED BY COSMETICS (34.65%) AND SKINCARE (28.49%).

TAKEAWAY:

- FOCUS ON HAIRCARE QUALITY CONTROL.
- SET STRICTER INSPECTION PROTOCOLS OR CHANGE SUPPLIER FOR HIGH-DEFECT PRODUCTS.

◆ REVENUE BY SKU (BAR CHART)

OBSERVATION:

- TOP SKUS: SKU51 (\$9.9K), SKU38, SKU31, ALL PERFORMING WITHIN A CLOSE RANGE.

TAKEAWAY:

- A KEEP TOP SKUS WELL-STOCKED AND ACTIVELY PROMOTED.
- INVESTIGATE IF LOWER-SELLING SKUS NEED DISCOUNTING, REDESIGN, OR REMOVAL.

Insight and Finding

◆ AVG PROFIT MARGIN BY SUPPLIER (TABLE)

OBSERVATION:

- SUPPLIER 3 HAS THE HIGHEST AVG PROFIT MARGIN (91.08%), FOLLOWED BY SUPPLIER 5 (85.27%).
- SUPPLIER 1 AND 4 HAVE THE LOWEST MARGINS (~84.1%).

TAKEAWAY:

- STRENGTHEN PARTNERSHIPS WITH SUPPLIER 3 AND 5.
- RENEGOTIATE TERMS OR ASSESS PERFORMANCE OF SUPPLIER 1 AND 4.

Dashboard -2 Product



Insight and Finding 2

◆ ORDER QUANTITIES BY SKU (BAR CHART)

OBSERVATION:

- MOST SKUS HAVE VERY SIMILAR ORDER QUANTITIES, MOSTLY IN THE 80–96 RANGE.
- SKU10, SKU30, AND SKU9 TOP THE ORDER LIST.

TAKEAWAY:

- CONSISTENT ORDERING PATTERN SUGGESTS DEMAND IS STABLE.
- USE THIS TO AUTOMATE REORDERING LEVELS USING EOQ OR REORDER POINT METHODS.

◆ STOCK LEVEL BY SKU (BAR CHART)

OBSERVATION

- SKUS 12, 51, 90 HAVE THE HIGHEST STOCK LEVELS (NEAR 100).
- SKUS 14, 60 HAVE THE LOWEST STOCK LEVELS (~84).

TAKEWAY:

- MONITOR LOW-STOCK SKUS FOR STOCKOUT RISK.
- CONSIDER REDUCING STOCK BUFFER FOR OVERSTOCKED SKUS WITH LOW TURNOVER.

Insight and Finding 2

◆ REVENUE BY SKU (BAR CHART)

OBSERVATION:

- SKU51 LEADS WITH \$9.9K REVENUE, FOLLOWED CLOSELY BY OTHERS — REVENUE DISTRIBUTION IS QUITE FLAT ACROSS SKUS.

TAKEAWAY:

- NO SKU CLEARLY DOMINATES — SUGGESTS A BALANCED PRODUCT PORTFOLIO.
- CONSIDER BUNDLING MEDIUM PERFORMERS TO INCREASE BASKET VALUE.

◆ SUPPLY CARRIERS & DEFECT RATE (%) (BAR CHART)

OBSERVATION

- CARRIER C HAS THE HIGHEST DEFECT RATE, FOLLOWED BY CARRIER A, THEN B.

TAKEAWAY:

- CARRIER C IS A RISK TO PRODUCT QUALITY — NEEDS AUDIT OR ALTERNATE OPTIONS.
- CONSIDER PERFORMANCE-BASED CONTRACTS OR PENALTIES FOR HIGH-DEFECT CARRIERS.

Insight and Finding 2

◆ PROFIT MARGIN BY PRODUCT TYPE (DONUT CHART)

OBSERVATION:

- COSMETICS: 33.76% SKINCARE: 33.26% HAIRCARE: 32.98%

TAKEAWAY:

- SHIFT INVENTORY ALLOCATION: REDUCE HAIRCARE/COSMETIC STOCK, INCREASE SKINCARE.
- UPDATE FORECASTING MODELS PER PRODUCT TYPE.

◆ SUPPLY CARRIER LEAD TIME (BAR CHART)

OBSERVATION

- CARRIER A: 18.32 DAYS ,CARRIER C: 17.14 DAYS AND CARRIER B: 16.23 DAYS

TAKEAWAY:

- PREFER CARRIER B FOR TIME-SENSITIVE PRODUCTS.
- RENEGOTIATE OR STREAMLINE WITH CARRIER A IF DELAYS ARE UNACCEPTABLE

Dashboard -3 Supplier



Insight and Finding 3

◆ SUPPLIER VS LOCATION MATRIX

OBSERVATION:

- SUPPLIER 3 IN KOLKATA HAS THE HIGHEST LEAD TIME: 22.67 DAYS.
- SUPPLIER 1 IN DELHI HAS FASTEST DELIVERY: 6.5 DAYS WITH LOW SHIPPING COST (₹3.69).
- SUPPLIER 2 SHOWS CONSISTENTLY HIGH SHIPPING COST ACROSS ALL CITIES (E.G., ₹27.67 IN CHENNAI).
- SUPPLIER 4 IN MUMBAI HAS LONG LEAD TIME OF 17.5 DAYS DESPITE BEING A METRO HUB.

TAKEAWAY:

- PRIORITIZE SUPPLIER 1 FOR DELHI & CHENNAI – OPTIMAL BALANCE OF SPEED & COST.
- NEGOTIATE OR REPLACE SUPPLIER 2 IN CHENNAI/KOLKATA DUE TO HIGH LOGISTICS COST.
- CONSIDER OPTIMIZING SUPPLIER 4'S ROUTE OR WAREHOUSE OPERATIONS IN MUMBAI.

◆ SUPPLIER SUMMARY TABLE

OBSERVATION

- SUPPLIER 3 IS MOST COST-EFFECTIVE: LOWEST SHIPPING COST (₹4.79) BUT HAS HIGHEST LEAD TIME (20) AND DEFECT RATE (2.47%).
- SUPPLIER 5 HAS THE HIGHEST DEFECT RATE (2.67%) AND HIGHEST SHIPPING COST (₹5.79).
- SUPPLIER 1 IS MOST RELIABLE OVERALL: LOW DEFECT (1.80%) AND SHORT LEAD TIME (15 DAYS).

Insight and Finding 3

TAKEAWAY:

- SUPPLIER 1 = MOST STABLE & RELIABLE SUPPLIER → CONSIDER INCREASING ALLOCATION.
- SUPPLIER 3 = LOW COST BUT RISKY → MAY SUIT NON-PRIORITY ORDERS.
- SUPPLIER 5 = HIGH COST, HIGH DEFECT → CONSIDER DEACTIVATION OR AUDITING.

◆ LEAD TIME BY SUPPLIER (BAR CHART)

OBSERVATION

- LONGEST LEAD TIME: SUPPLIER 3 (20 DAYS)
- SHORTEST: SUPPLIERS 1 & 4 (15 DAYS)

TAKEAWAY:

- USE SUPPLIER 1/4 FOR URGENT RESTOCKING.
- FOR PLANNED REPLENISHMENT, SUPPLIER 2 AND 3 CAN BE USED IF COST IS LOWER.

Insight and Finding 3

◆ DEFECT RATE BY TRANSPORT MODE

OBSERVATION

- HIGHEST DEFECT RATE: ROAD (2.62%)
- LOWEST DEFECT RATE: AIR (2.32%)

TAKEAWAY:

- FOR FRAGILE ITEMS, AVOID ROAD TRANSPORT UNLESS PACKAGING IS IMPROVED.
- AIR AND SEA ARE BETTER FOR FRAGILE OR QUALITY-SENSITIVE GOODS.

◆ STOCK LEVEL VS ORDERS BY LOCATION

OBSERVATION

- KOLKATA HAS HIGHEST STOCK BUT ALSO HIGH ORDER QUANTITY → WELL-STOCKED.
- DELHI & BANGALORE SHOW LOWER STOCK RELATIVE TO ORDER QUANTITY → RISK OF STOCKOUTS.

TAKEAWAY:

- INCREASE BUFFER STOCK IN BANGALORE AND DELHI TO AVOID STOCKOUTS.
- MONITOR INVENTORY-TO-ORDER RATIO REGULARLY TO MAINTAIN BALANCE.



Final Recommendations

Area	Recommendation
Inventory	Increase stock for high-demand SKUs and regions (like skincare, Delhi, Bangalore).
Suppliers	Prioritize Supplier 1; audit or replace Supplier 5.
Shipping Carriers	Use Carrier B for value orders; avoid Carrier C for fragile or urgent products.
Transport Modes	Shift to Sea/Rail where time permits; avoid Road for fragile goods.
Demand Forecasting	Implement predictive models for sales and stockout risk using historical trends.
Cost Optimization	Optimize costs by reducing unnecessary Air usage and overstock holding.

◆ OVERVIEW DASHBOARD

- SKINCARE LEADS IN BOTH REVENUE AND DEMAND.
- FEMALE CUSTOMERS CONTRIBUTE SIGNIFICANTLY TO REVENUE.
- CARRIER B HANDLES HIGH-VALUE SHIPMENTS, BUT CARRIER C HAS HIGH DEFECT RATES.

◆ PRODUCT DASHBOARD

- SKU51 IS THE TOP PERFORMER IN REVENUE.
- INVENTORY IMBALANCES FOUND: HAIRCARE AND COSMETICS ARE OVERSTOCKED; SKINCARE IS UNDERSTOCKED.
- CARRIER A HAS THE LONGEST LEAD TIME, WHILE CARRIER C IS COSTLIER AND LESS EFFICIENT.

◆ SUPPLIER DASHBOARD

- SUPPLIER 1 OFFERS THE BEST BALANCE OF LEAD TIME, COST, AND QUALITY.
- SUPPLIER 5 HAS THE HIGHEST DEFECT RATE AND SHIPPING COST — A WEAK LINK.
- ROAD TRANSPORT IS CHEAP BUT HAS THE HIGHEST DEFECT RATE.
- DELHI & BANGALORE RISK STOCKOUTS DUE TO LOW INVENTORY VS. DEMAND.



thank you

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