# SUPPLY CHAIN ANALYSIS

**Diagnostic Report**

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Tool Used: **Microsoft Power BI**

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# 1. Objective

The objective of this project is to analyze the company's supply chain performance, identify operational inefficiencies and gain insights into product performance using Power BI.

# 2. Data Overview

* The dataset used for this analysis is the ***Supply Chain Analysis*** dataset obtained from the database **“project supply chain data”**. The dataset contains 100 rows and 24 columns.
* This dataset encompasses **various features related to supply chain** of a company like Product type, SKU, Price, Availability, Number of products sold, Revenue generated, Customer demographics, Stock levels, Lead times, Order quantities, Shipping times, Shipping carriers, Shipping costs, Supplier name, Location, Lead time, Production volumes, Manufacturing lead time, Manufacturing costs, Inspection results, Defect rates, Transportation modes, Routes and costs.
* The dataset includes both **categorical variables and numerical variables**.
* The dataset used for this analysis was sourced from the company’s supply chain database. The data was **cleaned, validated**, and loaded into Power BI for analysis.

# 3. Key Performance Indicators (KPIs)

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| **KPI** | **Description** |
| Total Sales | Sum of all product sales over the selected period. |
| Average Delivery Time | Average number of days between order and delivery. |
| Profit Margin (%) | Difference between revenue and total cost, expressed as a percentage. |
| Average Production Volume | Average of production volume that was being produced by the company. |

# 4. Key Insights

* **Mumbai and Kolkata are the two major locations contributing in sales** and production.
* **Skincare products are dominating the market** with high demands whereas cosmetics needs attention due to lower sales performance.
* **A large portion of customer gender data is missing** or unspecified (‘Unknown’).
* **Delhi shows high sales volume but low revenue**, indicating potential pricing or distribution inefficiencies.
* **Road transportation incurs the highest cost, whereas sea transport is the most economical** but least used.

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| **Issue** | **Recommendation** | **Expected Outcome** |
| High delivery delays | Optimize routes and supplier coordination | Reduce delays by 15% |
| High transport costs | Balance between sea and Air charges | Save 10% overall cost |
| Stockouts | Implement demand forecasting model | Maintain steady inventory levels |
| Low demand and sales of cosmetics | Check on Quality of products and customer feedbacks. | Growth in the demand and profit from cosmetics by 20% |
| Less sales in Bangalore and Delhi | Advertise more and track the customer’s Interests. | Increased demand and sales by 15% |
| Less orders from Male customers | Introduce more Men’s product regarding their interests and feedbacks | Contribution in the profits by 15-20% more |

# 5. Recommendations

# 6. Conclusion

The supply chain analysis highlights key performance gaps and opportunities for efficiency improvement. Overall, the company can enhance supply chain efficiency by optimizing transportation costs, improving sales in low-performing regions, and prioritizing high-demand products to achieve better profitability and operational performance.