Supply Chain Performance Analytics Report

GlamourGlow Cosmetics – Tableau Dashboard Project

---

1. Company Overview

GlamourGlow Cosmetics is a rapidly growing beauty and personal care brand operating on both B2C and B2B channels. With a global supplier network, multi-warehouse distribution, and multiple transportation partners, the company's supply chain has become increasingly complex.

The leadership hired you, a Data Analyst, to build a **Tableau Supply Chain Command Center** to identify bottlenecks, improve delivery efficiency, manage inventory health, and control operational costs.

---

2. Problem Statement

GlamourGlow faces several systemic issues in its supply chain:

Key Challenges

- **Inventory Imbalance:** Frequent stockouts and overstocking across warehouses.
- **Supplier Volatility:** Lead times, defect rates, and quality vary heavily across vendors.
- **Delivery Delays:** Over 95% of orders are on-time but delays are not tracked properly.
- **Rising Logistics Costs:** Fuel, transportation, and surcharges cause cost fluctuations.
- **Data Silos:** Operational data is inconsistent and split across spreadsheets.

The Tableau dashboard aims to solve these issues by providing **centralized, real-time visibility**.

---

3. Dataset Summary

The dataset includes supply chain metrics across:

- **Inventory:** stock levels, availability, reorder risk

- **Sales:** products sold, revenue
- **Fulfillment:** delivery time, lead time
- **Suppliers:** defect rate, production volumes, inspection results
- **Shipping:** transportation mode, shipping cost, route efficiency
- **Costs:** manufacturing, logistics, miscellaneous costs

Total Columns: 24

---

4. Project Objectives

The Tableau dashboard contains **6 analytical modules**, each answering a critical supply chain question:

1. **Executive KPI Summary**
2. **Inventory Health Across Warehouses**
3. **Order Performance & Delivery Trends**
4. **Supplier Performance Benchmarking**
5. **Shipping Efficiency by Carrier & Route**
6. **Cost Structure Breakdown**

These modules empower stakeholders to proactively monitor supply chain health and act quickly.

---

5. Calculated Fields Used in Tableau

Inventory Calculations

- **Available Qty** = Stock levels – Availability
- **Daily Avg Sales** = Number of products sold / 30
- **Days of Stock** = Available Qty / Daily Avg Sales
- **Stock Status**

    - Understock: days of stock < 20%
    - Overstock: stock levels > 1.5× threshold
    - Healthy: remaining SKUs

Fulfillment Calculations

- **On-Time Flag** = IF Delivery durations ≤ Lead time THEN 1 ELSE 0
- **On-Time %** = SUM(On-Time Flag) / COUNT(SKU)
- **Avg Delivery Time** = AVG(Delivery durations)

Supplier Calculations

- **Weighted Defect Rate** = Defect rates
- **Production Efficiency** = Production volumes / Manufacturing lead time

Shipping Calculations

- **Shipping Cost per Unit** = Shipping costs / Order quantities
- **Late Severity**
    - On-time
    - Late 1–3 days
    - Late >3 days

Cost Calculations

- **Total Supply Chain Cost** = Manufacturing costs + Shipping costs + Costs (misc)

---

6. Visual Modules (Dashboards)

⭐ Module 1 — Inventory Status Dashboard

Purpose:

Understand SKU-level inventory health across warehouses.

Visuals Created:

- **Heatmap (Highlight Table)** showing SKU vs Location
- Color: Days of Stock
- Label: Available Qty
- Filters: Location, Product Type, Stock Status

Insights Example:

- Several SKUs show **understock** in certain regions.
- Other SKUs remain **overstocked**, tying up working capital.

⭐ Module 2 — Order Fulfillment & Delivery Trends

Purpose:

Assess delivery performance and delay patterns.

Visuals Created:

- **Dual-axis Line Chart:**
    - Line 1: On-Time Delivery %
    - Line 2: Avg Delivery Time
- **Bar Chart:** Late deliveries by region
- Filters: Transportation mode, region

Insights Example:

- On-time performance dips for shipments requiring long lead times.
- Specific warehouse locations show repeat late deliveries.

⭐ Module 3 — Supplier Performance Analysis

Purpose:

Benchmark suppliers based on reliability and cost.

Visuals Created:

- **Scatter Plot:**
    - X-axis: Lead Time
    - Y-axis: Defect Rate
    - Size: Production volumes
    - Color: Manufacturing costs

Insights Example:

- Some suppliers show low cost but **high defect rates** → high operational risk.
- Others deliver consistently within low lead times.

⭐ Module 4 — Shipping Efficiency by Carrier & Route

Purpose:

Evaluate logistics partners and transportation routes.

Visuals Created:

- **Bar Chart:** Shipping cost per carrier
- **Route Performance Chart:** Avg delivery durations by route
- Color: Shipping costs
- Filters: Transportation modes, Routes

Insights Example:

- Air routes deliver faster but cost significantly more.

- Route B appears optimal with balanced cost and time.

⭐ Module 5 — Cost Structure Breakdown

Purpose:

Understand operational cost drivers.

Visuals Created:

- **Stacked Bar or Area Chart:**
  Manufacturing + Shipping + Miscellaneous costs
- **Cost per Unit Chart:** By SKU or Product Type

Insights Example:

- Logistics cost spikes during higher-demand cycles.
- Manufacturing cost varies significantly by product type.

⭐ Module 6 — Executive KPI Summary

Purpose:

Show leadership the most important supply chain KPIs.

KPIs Included:

- On-Time Delivery %
- Avg Delivery Time
- Understock SKU Count
- Overstock SKU Count
- Total Supply Chain Cost

Insights Example:

- Company maintains 90–95% on-time delivery.
- Inventory inefficiencies still present on the SKU level.

---

7. Key Insights from the Dashboard

Inventory

- Some regions face **repeat understocking**, risking sales loss.
- Overstocking ties up cash and increases holding costs.

Orders

- Delivery delays correlate with longer route durations.
- Regions with difficult geography show worse delivery metrics.

Suppliers

- Certain suppliers have **high defect rates**, raising rework cost.
- Some suppliers remain optimal with low lead time + low defect rate.

Shipping

- Air freight is fast but expensive.
- Route B is cost-efficient with stable delivery times.

Costs

- Logistics costs spike during sales campaigns (seasonal demand).
- Miscellaneous costs represent avoidable inefficiencies.

---

8. Business Recommendations

1. Rebalance Inventory Allocation

- Use demand patterns to automate restocking.
- Increase safety stock in high-risk zones.

2. Supplier Rationalization

- Shift sourcing toward consistent, reliable suppliers.
- Implement quality-based scoring for vendor selection.

3. Delivery Optimization

- Analyze failed deliveries and add route-level dynamic rerouting.
- Improve dispatch scheduling (avoid weekend delays).

4. End-to-End Cost Monitoring

- Track logistics costs daily during promotions.
- Detect abnormal surcharges early with alerts.

5. Centralize Operations Data

- Use Tableau as a single supply chain visibility platform.
- Integrate with ERP/WMS for real-time refresh.

---

9. Conclusion

This Tableau Supply Chain Dashboard provides GlamourGlow Cosmetics with a powerful command center to monitor performance across inventory, logistics, suppliers, and costs.
It identifies bottlenecks, highlights optimization opportunities, and equips leadership to make swift, data-driven decisions.