**Logistics Data Analysis Report**

**Objective**

To analyze shipment delivery patterns based on customer behavior, shipping methods, product characteristics, and warehouse operations, and identify key factors influencing on-time vs. delayed deliveries.

**1. Late Delivery Rate**

**Insight:**

* **38.2%** of shipments arrived **late**.
* This is a significant performance concern and requires root cause analysis.

**2. Mode of Shipment & Delivery Performance**

**Insight:**

* **Ship** mode had the **highest late delivery rate (approx. 50%)**.
* **Flight** mode had the **lowest late delivery issues**, indicating faster and more reliable transport.

**Actionable Suggestion:**  
Prioritize **flight shipments** for time-sensitive products and evaluate **cost-benefit trade-offs** for reducing ship-mode usage.

**3. Warehouse Block Performance**

**Insight:**

* **Warehouse Block B** had the **highest on-time delivery rate**, while **Block D** performed poorly.
* Differences suggest **internal process inefficiencies or location-based delays**.

**Recommendation:**  
Review Block D’s logistics operations, staff availability, or regional constraints.

**4. Customer Care Calls vs. Late Deliveries**

**Insight:**

* Deliveries with **0–1 customer care call** had better on-time performance.
* **More calls correlated with more delays**, suggesting **customer dissatisfaction due to issues**.

**Interpretation:**  
Customers often call after delays start, so this trend reflects service breakdowns rather than being a cause.

**5. Product Importance & Timeliness**

**Insight:**

* Surprisingly, **"low importance" products had higher on-time delivery rates**.
* **High importance products saw more delays**, indicating **possible prioritization issues**.

**Action:**  
Investigate if current **scheduling algorithms are misclassifying high-priority items**, and revise priority-based dispatch logic.

**6. Cost vs. Delivery Time**

**Insight:**

* The average cost for late deliveries was **slightly lower**, but not significantly different.
* **Product costs don’t appear to influence delivery time**.

**7. Discounts Offered vs. Delivery Performance**

**Insight:**

* **High discounts (>50%)** showed **greater late delivery rates**.
* Possibly due to **stock clearance or lower priority** in handling discounted products.

**Action:**  
Introduce **buffer logistics for high-discount campaigns** to preserve customer satisfaction.

**8. Weight & Delivery Timeliness**

**Insight:**

* Heavier shipments had a **higher likelihood of delay**.
* Indicating **weight affects shipment speed**, especially in surface transport.

**Recommendation:**  
Use weight-aware allocation for vehicle types and schedule **priority slots for bulky goods**.

**9. Prior Purchases vs. Delivery Timeliness**

**Insight:**

* Customers with **more prior purchases experienced better delivery rates**.
* Suggests that **repeat customers are prioritized**, which is positive.

**Recommendation:**  
Formalize **loyalty-based prioritization** to reinforce positive customer experiences.

**Conclusion**

This analysis identified several bottlenecks and trends affecting delivery timelines:

* The shipment method and warehouse location are top predictors of delays.
* High discounts and heavier items also correlate with late arrivals.
* Customer satisfaction (via care calls) reflects operational issues.