

# **Delivery Analytics Dashboard – Analytical Report**

## **Executive Summary**

This report presents an in-depth analysis of delivery performance based on more than 10,000 shipment records.

The primary objective of this study is to understand delivery delay behavior across multiple operational dimensions including courier partners, cities, zones, product categories, and time periods. Using a combination of SQL-based querying, Excel aggregation, and Python-powered visual analytics, the dashboard enables stakeholders to identify inefficiencies, recognize performance gaps, and design targeted logistics improvements. The insights derived from this analysis support data-driven decision-making aimed at improving on-time delivery rates, customer satisfaction, and operational efficiency.

## **Data Overview & Methodology**

The dataset consists of shipment-level delivery records containing order dates, promised delivery dates, actual delivery dates, courier information, destination city, zone, product category, and delivery delay days.

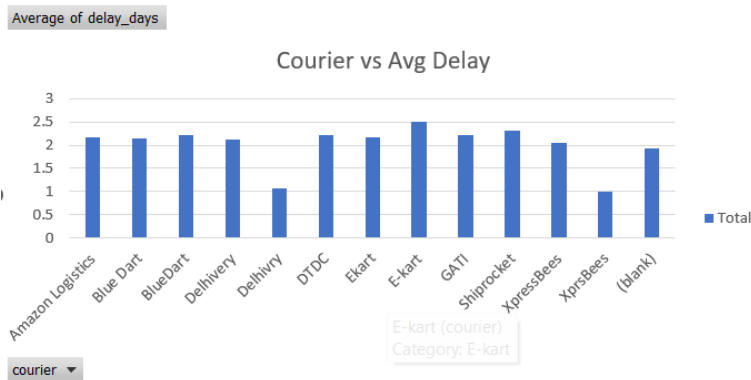
Methodology followed:

- Raw data was imported into a relational database using SQL.
- Data cleaning steps included removal of duplicates, handling null values, standardizing courier names,  
and correcting invalid delay values.
- Aggregated metrics were calculated using SQL queries.
- Visual analysis was performed using Excel dashboards and Python (Pandas and Matplotlib).

This structured approach ensures accuracy, consistency, and reliability of analytical insights.

# Key Performance Observations

## Courier Performance Analysis



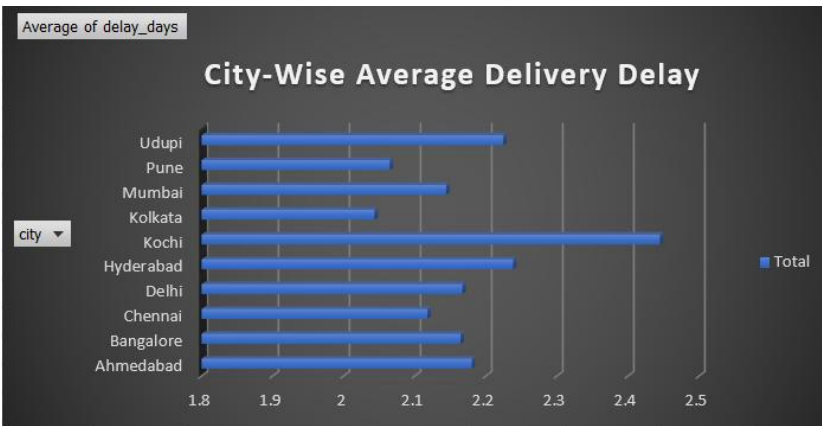
The dashboard highlights significant variation in average delivery delays across courier partners. Certain couriers consistently show higher delay days, indicating inefficiencies in route planning, last-mile delivery execution, or capacity management.

Lower-performing couriers present a risk to customer satisfaction and brand perception. Conversely, better-performing couriers demonstrate the potential for optimization through strategic allocation of shipments.

Business Interpretation:

Courier performance should not be treated uniformly. Historical delay trends must guide courier selection, especially for time-sensitive and high-value shipments.

## City-wise Delivery Delay Insights



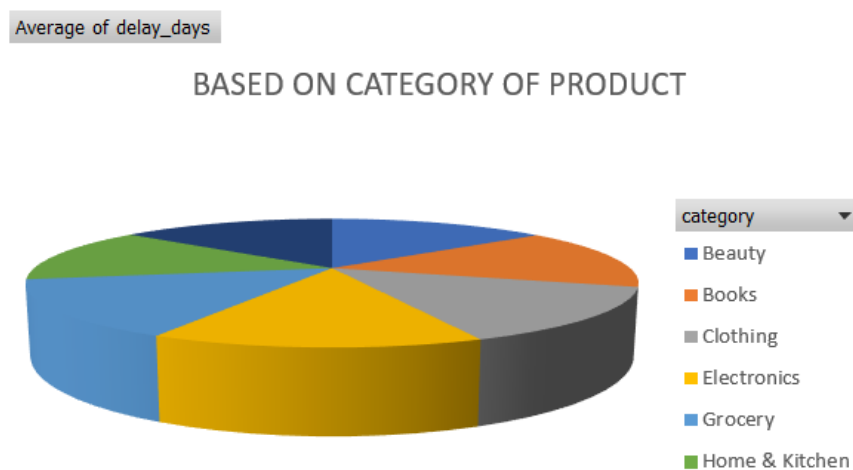
City-level analysis reveals that metro cities such as Mumbai, Delhi, Hyderabad, and Bangalore exhibit higher average delivery delays compared to tier-2 and tier-3 cities.

The higher delays in metros can be attributed to:

- High order volumes
- Traffic congestion
- Complex delivery routes
- Increased dependency on last-mile operations

These findings indicate that high-demand cities require customized delivery strategies rather than standardized logistics models.

### Category-wise Performance Analysis



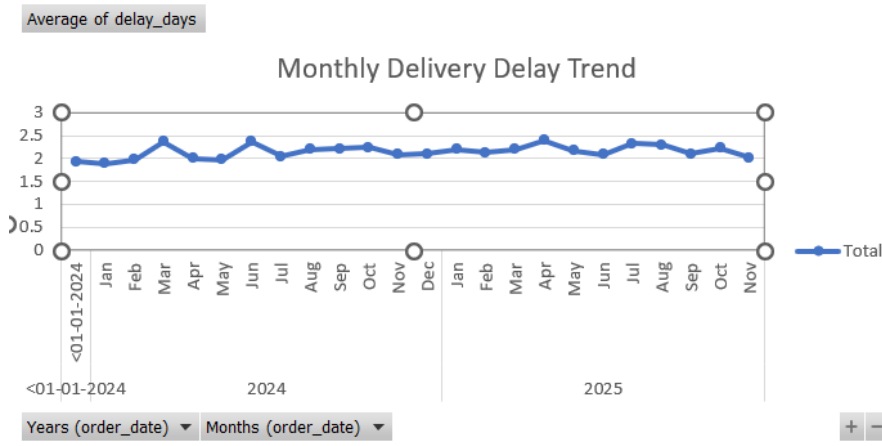
Product category analysis reveals that electronics and heavy-handling items experience higher average delivery delays compared to lightweight or fast-moving consumer goods.

Factors contributing to category-based delays include:

- Special handling requirements
- Packaging complexity
- Higher risk of damage
- Additional quality checks

This insight emphasizes the need for category-specific logistics workflows rather than a one-size-fits-all approach.

## Time-Based & Seasonal Trends



Monthly trend analysis reveals periodic spikes in delivery delays, particularly during festival seasons and high-demand months.

These spikes indicate capacity stress within logistics networks due to:

- Sudden demand surges
- Limited delivery workforce
- Inventory movement delays

Understanding seasonality enables proactive planning, helping organizations scale logistics capacity in advance of demand peaks.

## Business Impact Assessment

Delivery delays have a direct and measurable impact on business performance.

Key consequences include:

- Reduced customer satisfaction
- Increased customer complaints and returns
- Higher operational costs
- Potential loss of repeat customers

If left unaddressed, persistent delivery delays can negatively affect brand trust and long-term revenue.

## Strategic Recommendations

Based on analytical findings, the following strategic actions are recommended:

### 1. Courier Optimization:

- Implement SLA-based courier evaluation.
- Allocate high-priority shipments to best-performing couriers.

### 2. City & Zone-Level Planning:

- Establish micro-fulfillment centers in high-delay metros.
- Optimize last-mile delivery routes.

### 3. Category-Specific Handling:

- Introduce dedicated workflows for electronics and heavy items.
- Improve packaging and dispatch efficiency.

### 4. Seasonal Preparedness:

- Scale logistics capacity during peak demand periods.
- Pre-position inventory in high-demand regions.

## Conclusion

The Delivery Analytics Dashboard successfully transforms raw shipment data into actionable business insights.

By analyzing delivery delays across multiple dimensions, the dashboard enables targeted operational improvements rather than generic interventions.

Implementing the recommended strategies can significantly reduce delivery delays, improve customer experience, and enhance logistics efficiency. This dashboard serves as a powerful decision-support tool for operations, supply chain management, and business leadership.