

Final Analysis Report for Delivery and Pickup Dashboards

1. Delivery Dashboards Analysis

Introduction & Project Background

The delivery operations analysis aims to optimize logistics performance by identifying inefficiencies, improving order acceptance, reducing delays, and enhancing courier productivity. By leveraging data analytics, this report provides insights into key trends, challenges, and solutions to improve delivery efficiency.

Summary of Developed Dashboards

Order Acceptance & First Movement Analysis

This dashboard examines the rate at which orders are accepted and how quickly they transition into movement.

Key findings show that the order acceptance rate is at 92.3%, but there are delays in the first movement in certain regions due to courier availability. The average time for the first movement is 8.11 minutes, with a target of 5 minutes.

Delivery Attempt Success & Failure Analysis

Analysis of delivery attempt outcomes reveals that 99.68% of deliveries experience delays, significantly exceeding the goal of 1%. Common reasons include incorrect addresses (45% of failures) and courier delays (30%).

Courier Performance & Efficiency Analysis

The average ETA per courier varies significantly, with some couriers taking up to 20% longer than others. The highest-performing couriers achieve an average ETA of 6.14 minutes, while the lowest-performing ones exceed 10 minutes. Workload balancing is a key factor in efficiency.

Customer Experience & Satisfaction Metrics

Customer feedback highlights an 85% satisfaction rate for on-time deliveries but drops to 60% when delays exceed 15 minutes. Service ratings improve when customers receive accurate ETA estimates.

Geospatial Delivery Performance Analysis

Mapping delivery performance across cities shows that regions like Shanghai have the highest delays (average ETA of 9.5 minutes), while Hangzhou has the best performance (7.2 minutes).

Overall Business Insights & Trends

Common trends observed include higher failure rates in specific regions due to traffic congestion and incorrect addresses. Couriers with higher workloads tend to have longer ETAs, leading to customer dissatisfaction.

Actionable Recommendations & Business Outcomes

- Implement real-time traffic data integration to optimize routes and reduce delays.
- Enhance address verification processes to minimize failed deliveries.
- Improve workload distribution among couriers to ensure balanced efficiency.

Conclusion & Next Steps

By leveraging data-driven insights, logistics teams can reduce delivery failures and improve customer experience.

Future steps include AI-driven route optimization and automation in task assignment.

2. Pickup Dashboards Analysis

Introduction

The pickup operations analysis focuses on optimizing Estimated Time of Arrival (ETA), reducing failed pickups, and improving courier workload efficiency.

This report presents data-driven insights to enhance last-mile logistics.

Dashboard Insights & Findings

ETA Performance Analysis

Pickup operations show an average ETA of 9.20 minutes, with a target of 6 minutes.

On-time pickups stand at 98.15%, surpassing the 90% target. However, regional disparities exist, with Shanghai experiencing the highest delays.

Courier Performance & Workload Analysis

Couriers handling over 50 pickups per day tend to have 20% longer ETAs. Optimizing workload distribution can improve efficiency and reduce delays.

Pickup Success & Failure Analysis

Failed pickups occur at a rate of 1.85%, mostly due to courier delays (55%) and incorrect customer availability (30%). Address verification and customer notifications can help mitigate failures.

Operational Efficiency & Resource Utilization

Certain high-demand regions suffer from low courier availability, leading to inefficiencies.

Adjusting courier assignments based on demand can enhance service levels.

Pickup Density & Demand Analysis

Peak pickup hours occur between 10 AM - 2 PM, with idle couriers observed in the evening.

Redistribution of tasks can maximize resource utilization.

Business Outcome & Impact

- 15% improvement in on-time pickups after adjusting courier schedules.
- Reduced failed pickups from 3% to 1.85% with better address verification.
- Enhanced resource allocation leading to a 10% improvement in pickup efficiency.

Conclusion & Next Steps

Further improvements can be achieved by integrating real-time tracking, AI-based route optimization, and predictive analytics for better demand forecasting.

Overall Conclusion & Recommendations for Delivery and Pickup Operations

Overall Conclusion

From the comprehensive analysis of both **delivery** and **pickup** operations, several key trends and insights have emerged:

- **Delivery Operations** face significant challenges with **delayed deliveries (99.68%)**, **high failure rates due to incorrect addresses (45%)**, and **inefficient courier workload distribution**. Despite a **92.3% order acceptance rate**, the first movement delays negatively impact overall efficiency.
- **Pickup Operations** have a **high on-time pickup rate (98.15%)**, but regional disparities and workload imbalances contribute to **longer ETAs (9.20 minutes)** and **failed pickups (1.85%)**. Courier workload and demand fluctuations also play a role in inefficiencies.
- Both processes suffer from **regional inefficiencies**, with cities like **Shanghai** showing **longer ETAs** and **higher failure rates**, whereas **Hangzhou** performs significantly better.

By addressing these challenges, both delivery and pickup operations can achieve **higher efficiency, cost savings, and improved customer satisfaction**.

Overall Recommendations

1- Optimize Route Planning & Traffic Considerations

- Integrate **real-time traffic data** to suggest the fastest and least congested routes for both delivery and pickup.
- Use **AI-driven route optimization** to dynamically adjust assignments based on courier locations and demand.

2- Improve Courier Workload Distribution

- Balance courier assignments to prevent **overloading high-performing couriers** while **underutilizing others**.
- Implement **automated workload assignment** based on real-time order volumes and courier capacity.

3- Reduce Failed Deliveries & Pickups

- Strengthen **address validation mechanisms** at the point of order entry to **reduce incorrect addresses (45% of failures)**.
- Enhance **customer notifications and confirmations** to ensure availability before dispatching a courier.

4- Enhance Operational Efficiency

- Identify and reallocate couriers in **high-demand regions** suffering from delays.
- Reduce idle time by implementing a **dynamic task assignment system** based on live data.

5- Implement Predictive Analytics for Demand Forecasting

- Leverage **historical data and AI** to predict peak demand hours and adjust resources accordingly.
- Use **machine learning algorithms** to anticipate order surges and **pre-assign couriers** in high-density areas.

6- Improve Customer Experience & Satisfaction

- Provide **real-time ETA updates** to customers with increased accuracy.
- Introduce a **courier rating system** to monitor performance and ensure quality service.

7- Cost Reduction & Resource Optimization

- Identify unnecessary costs due to **failed deliveries, inefficient routes, and courier underutilization**.
- Optimize fuel consumption and reduce operational overhead by **minimizing unnecessary trips**.