# AMAZON LAST-MILE DELIVERY OPTIMISATION

Tableau dashboard analysis of Amazon Last-mile Delivery Optimisation

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# TITLE: AMAZON LAST-MILE DELIVERY OPTIMISATION

**Objective:** To uncover insights into factors influencing delivery efficiency, identify areas for optimisation, and improve customer satisfaction.

**Dataset:** Amazon last-mile delivery data, including Delivery Time, Agent Ratings, Traffic, Weather, and Area of delivery.

**Goal:** Reduce average delivery time while maintaining high customer satisfaction.

# PROJECT OVERVIEW AND KPIS

amazon

**124.9** Average Delivery time

**4.6** Average Agent Rating

**43,739** Total Deliverables

## GOAL

Optimise last-mile time without hurting CX

## SCOPE

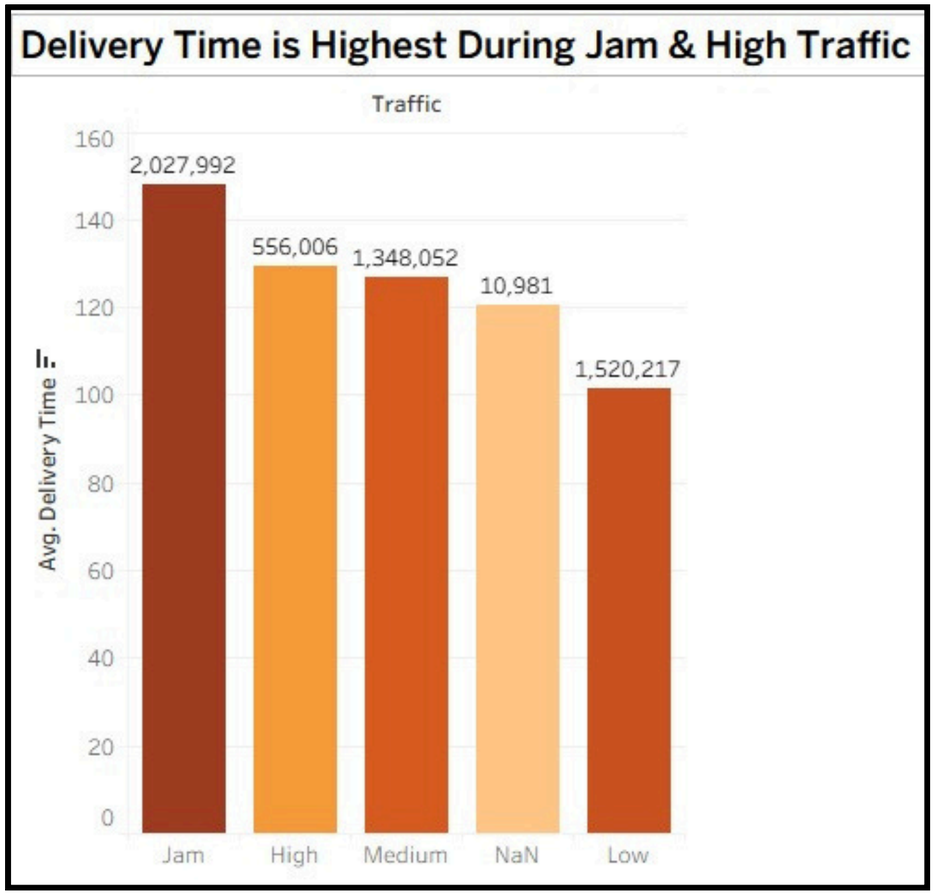
43,739 orders with Traffic, Weather, Area, Vehicle, Rating

## BASELINE

Avg 124.9 min; Median 125; p90 195; <=120 min = 48.8%

# TRAFFIC IS THE #1 DELAY DRIVER

Highest delivery times occur during Jam and High traffic; Low/Medium are faster.




**Insight:** Traffic congestion is the single most significant factor slowing deliveries.

**Numbers:** Jam: 147.8 min vs Low: 101.4 min → +46.4 min penalty.

**Time-of-day link:** Delivery time climbs after 11:00 and peaks 19:00–21:00.

## Actions

- Real-time, traffic-aware routing; cap batch size at peak.
- Dynamic SLAs by hour×traffic (peak promise ~150–160 min; off-peak 110–120).
- Incentivise driver supply 18:00–21:00 in metro hotspots.

# WEATHER CONDITIONS AFFECT DELIVERY EFFICIENCY

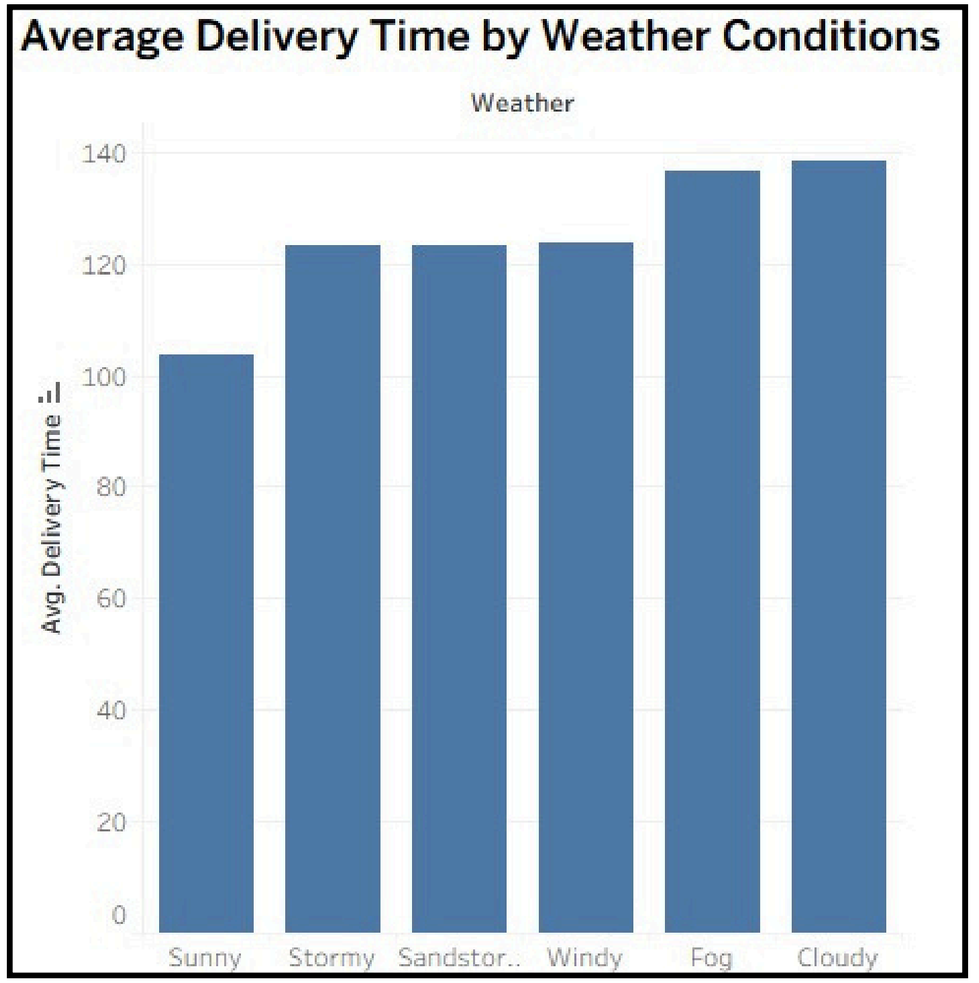
Slowest under Foggy/Cloudy; fastest on Sunny days.

**Insight:** Weather adds predictably ~35 minutes in adverse conditions.

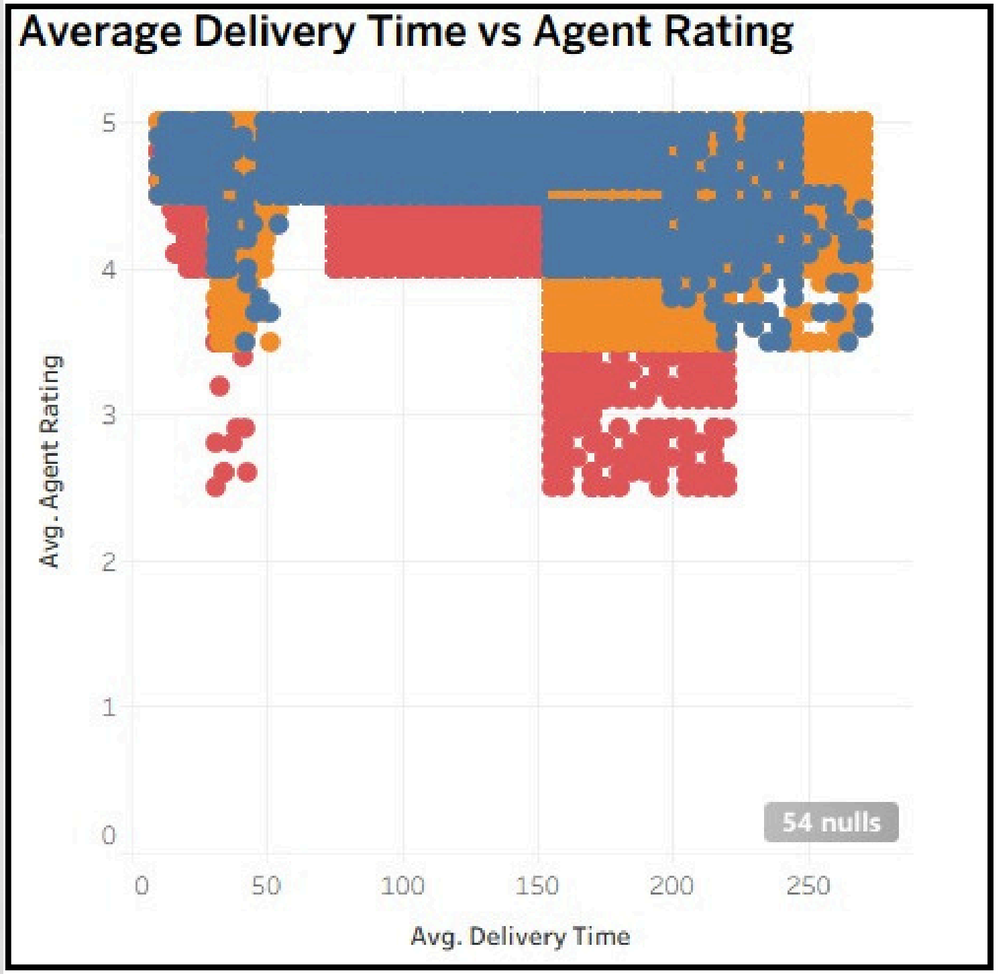
**Numbers:** Cloudy ≈ 138.3 min vs Sunny ≈ 103.7 min → +34–35 min.

## Actions

- Adjust delivery-time promises using forecasts (buffer +15–30 min).
- Pre-position capacity; prefer scooter/van on long arterials in bad weather.



# AGENT QUALITY VS DELIVERY TIME




Higher agent ratings associate with faster deliveries.

**Insight:** Ratings proxy experience or discipline; low-rated agents are much slower.
**Numbers:** Correlation ≈ -0.29; ≤4.2 rating → ~167 min vs 4.5–4.8 → ~115 min.

## Actions

- Create quality bands (A ≥4.7 priority dispatch; B 4.5–4.7; C ≤4.2 with coaching).
- Route complex/peak jobs to Band-A; remediation sprints for Band-C.

# AREA-WISE DELIVERY ANALYSIS

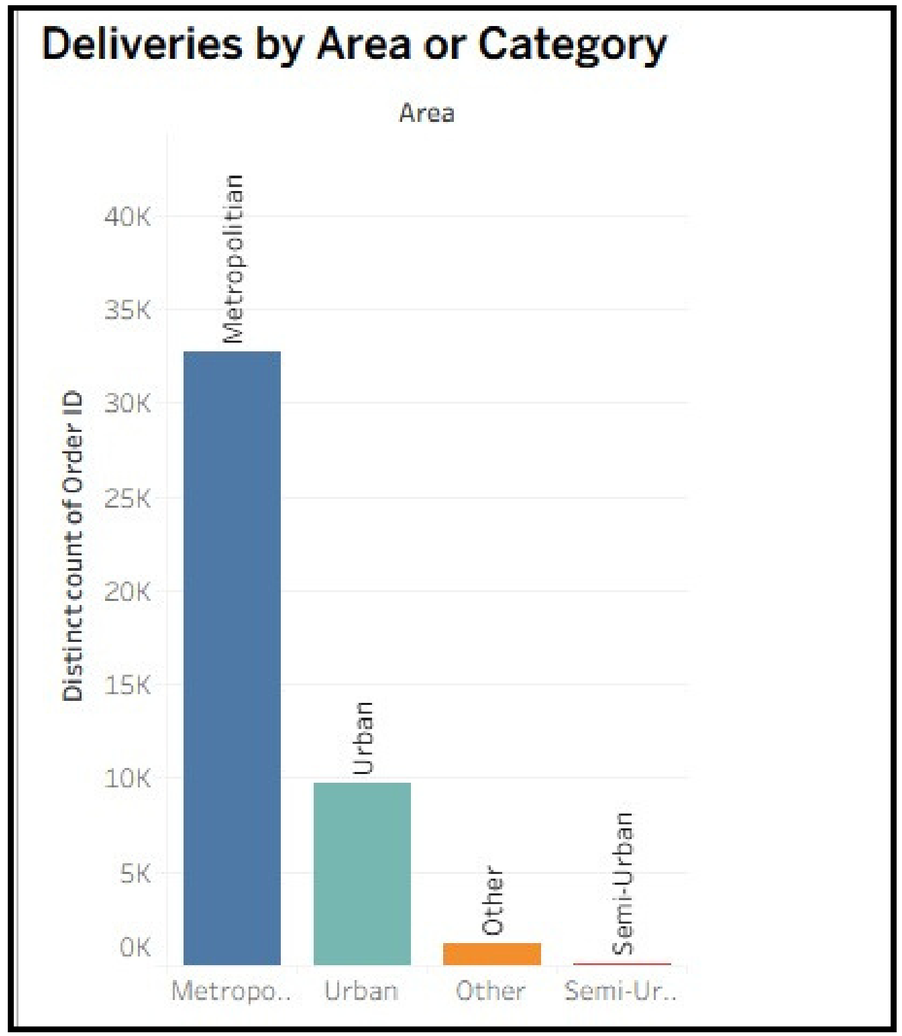
Metropolitan dominates volume; Urban next; Semi-Urban/Other minimal

**Insight:** Optimising metros/urban yields the largest, fastest efficiency gains.

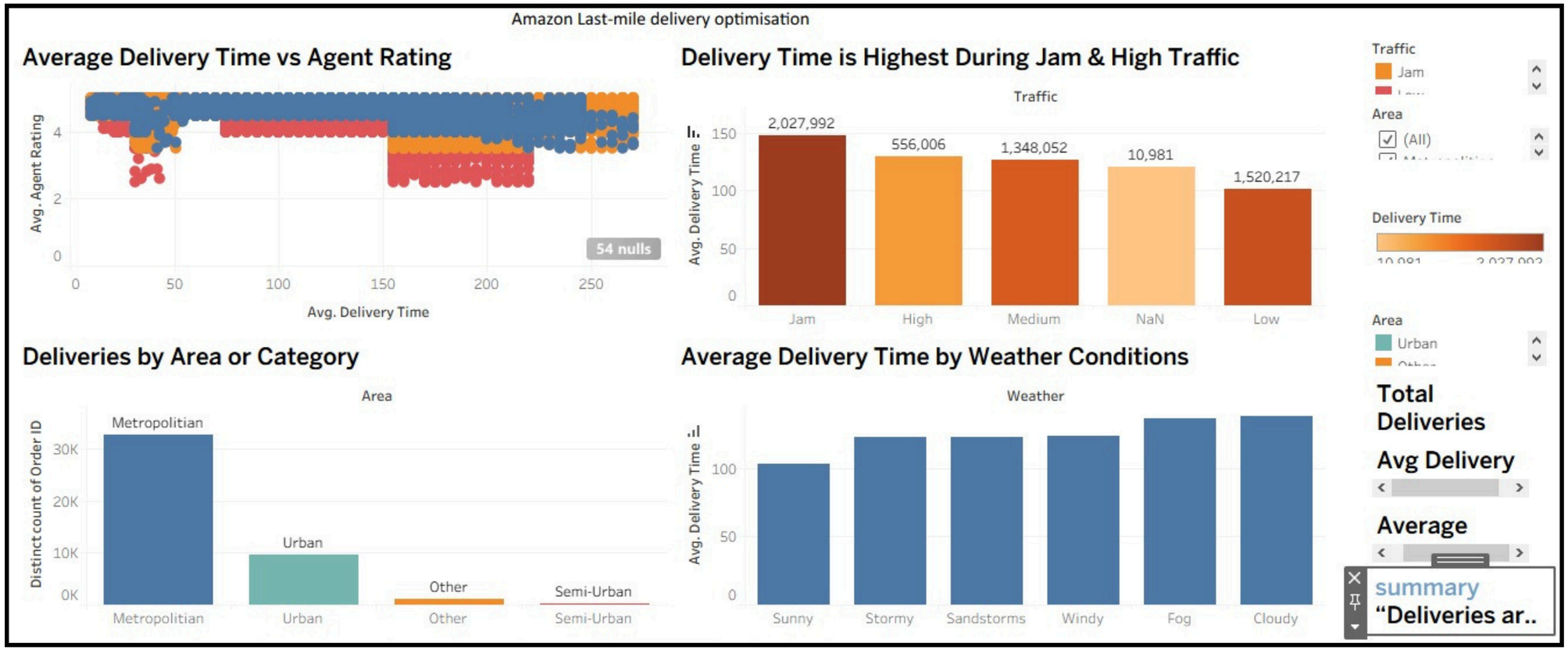
**Numbers:** Metropolitan ~32.7k, Urban ~9.8k; Semi-Urban has extreme mean ~238.6 min (small n).

## Actions

- Focus investments and rebalancing in metro/urban zones.
- For semi-urban, use clustered delivery windows and part-time pools.



# MONITORING VIEW




- Measures use AVG(Delivery Time) with order counts as labels/tooltips.
- Grocery (~26.5 min) tracked separately from parcels.
- Data quality badge: "Pickup lag has negative outliers; stage-time fix in progress."

# KEY INSIGHTS, RECOMMENDATIONS & TARGETS

## KEY INSIGHTS

- Traffic jams & bad weather drive delays; evening peak is structural.
- Metropolitan/Urban drive most deliveries → focus zones.
- Agent rating strong (4.6) overall, but quality dispersion explains speed gaps.

## 30–45 DAY TARGETS

- On-time ≤120 min: 48.8% → 60% in metros (+8–10 pp overall).
- p90 delivery: 195 → 175 min.
- 19–21h average: -15–20 min.
- Band-C share: -50% via coaching/attrition.

## RECOMMENDATIONS

Real-time traffic data + dynamic dispatch & SLAs.
Weather-based time buffers & pre-positioning.
Reallocate agents to metro/urban at peak; quality bands + coaching for Band-C.
Separate Grocery Express KPIs; protect capacity.
Data hygiene & telemetry: UTC timestamps + stage timers (accept → pickup → en-route → delivered).

# THANK YOU