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# DIGIHAUL LOGISTICS

— Delivery Prediction 2023. —

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# Analysis

- In Q3 of 2023, 72% of deliveries were on On-time.
- Over 27% of deliveries were late delivery, Carriers should notify customers of delay in deliveries.
- Over 20 Carriers had more than 500 late deliveries.
- Tractor Unit vehicles have more than 1000 late deliveries.
- Packages collected before 8am are delivered On-Time.
- Deliveries with more collection time period between them tend to be delivered late.

# Recommendations:

- **Improve Communications between Carriers & Customers.**
  - Automate late delivery alerts to customers to improve customer satisfactions and transparency.
- **Improve Collection and Delivery Schedules.**
  - Evaluate operational processes to reduce the need of excessively long collection time.
  - Schedule adjustments: Package collections should be focused during the weekends due to lower rate of late deliveries. Prioritize early collections and deliveries (between 6am - 7am) to avoid delays.

# Recommendations:

- **Optimize Distance Range:** Investigate the reason behind lateness for deliveries between distance of 200-300 km range. Optimize routes for these distance ranges to improve on-time deliveries.
- **Investigate Overall Lateness:**
  - Analyze and develop targeted strategy to improve deliveries done on Thursdays and Fridays. Are there logistical or operations reasons behind late deliveries occurring on this days?
  - Introduce performance incentives or penalties to carriers to meet up with delivery deadline.
  - Investigate why Tractor Units have more late deliveries and consider using more suitable vehicles to avoid delays.

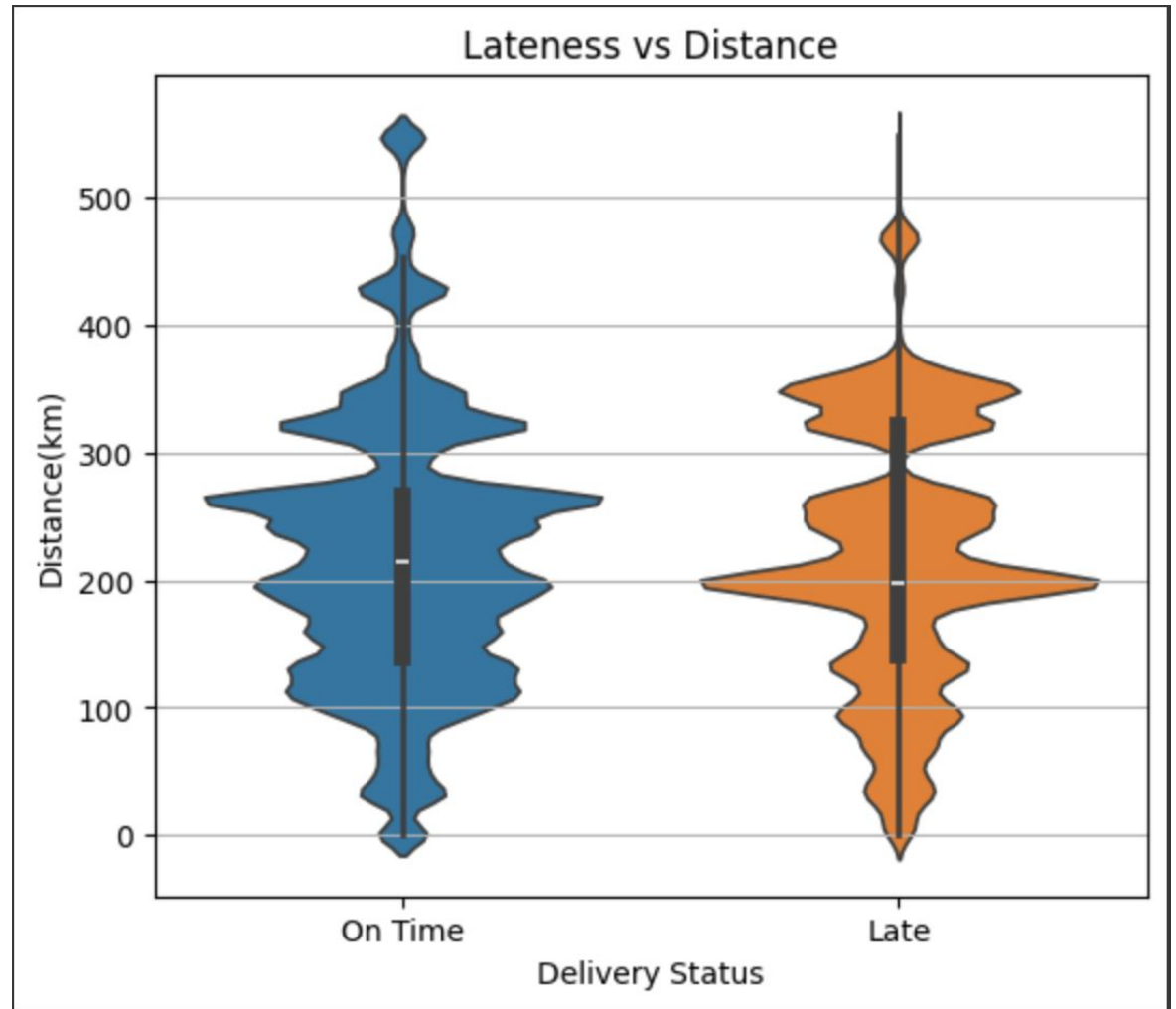
# Why Shipments are Delayed?

There are 2 major factors that affect shipment delays.

- Distance of Route.
- Hour of Delivery & Collection

## DISTANCE vs LATENESS

- The orange plot shows the distribution of distance with late delivery, the long tail along distance 200 - 250 km indicates this distance experience more late deliveries.
- Longer distance of 500 km and shorter distance of 100 km are seen to be more concentrated in On-Time delivery status.



## Collection & Delivery Window vs Lateness.

The scatter plot shows the relationship between collection and delivery window with lateness of delivery.

- Packages scheduled to be collected within lesser time periods are seen to be delivered on time, with just one outlier.
- Packages collected within longer collection time periods are delivered late.

