MEESHO DICE

BUSINESS ANALYTICS : OPTIMISING DELIVERY AND LOGISTICS EFFICIENCY

TECH TRACK

DELIVERY TIME ANALYSIS:

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Objective: Analyse historical delivery data to identify the factors that contribute to delays and propose strategies for minimising late deliveries.

Key Findings:

- Warehouses located far from high-demand regions experience more frequent delays. For example, the Chennai warehouse in Tamil Nadu has a lower inventory load compared to Coimbatore. Redistributing inventory could be helpful, but it isn't realistic given the 507 km gap between the two locations makes this impractical.

- Inconsistent supplier performance (due to either delayed dispatch or delayed shipment) contributes to late deliveries.

DELIVERY TIME ANALYSIS:

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Solutions:

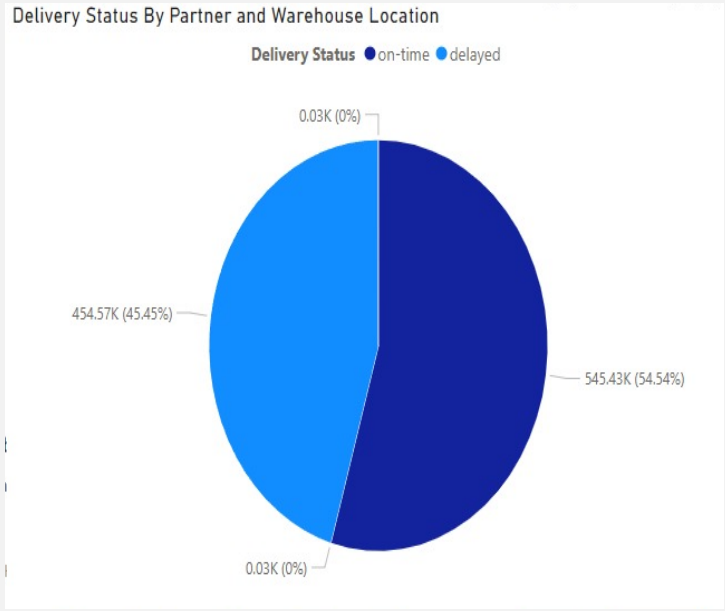
- **Address Warehouse Delays:** Relocate or increase inventory in key locations to minimize fulfilment and transit times.
- **Strategic Warehouse Placement:** Ensure warehouses are positioned near high-demand regions.
- **Carrier Optimization:** Dynamically assign carriers based on past performance for efficient delivery.
- **Route Optimization:** Use algorithms to optimize delivery routes, particularly in traffic-heavy areas like Mumbai, Delhi, and Bengaluru.
- **Inventory Forecasting:** Maintain adequate inventory levels based on demand forecasts to avoid bottlenecks.
- **Peak Period Preparation:** Scale up operations, staffing, and storage capacity during high-volume periods like festivals, sales, holidays, etc.

LOGISTICS COST OPTIMISATION:

Objective: Analyse shipping costs across various regions and suggest ways to optimise costs, including warehouse placement, carrier selection, and route optimisation.

Key Findings:

- Shipping cost by order status ~ Rs 299
- Need of warehouse placement in North and East Indian parts



A large percentage of late deliveries (45.46%) indicates inefficiencies in route planning, traffic management, or warehouse placement.

LOGISTICS COST OPTIMISATION:

All partners have nearly the same delivery volume, suggesting that delivery volume isn't a differentiating factor.

Returns are higher than cancellations (14.79K-15.10K). RTO rates are significant (53.92K - 54.18K) order count.

LOGISTICS COST OPTIMISATION:

Solutions:

- **Warehouse Placement:** Relocate or add warehouses near high-demand regions to reduce delivery times and costs.
- **Carrier Contract Renegotiation:** Negotiate better rates and incentivize carriers to improve on-time delivery performance.
- **Route Optimization:** Use dynamic route optimization and carrier performance data to reduce RTO orders and improve delivery times.
- **Consolidate Shipments:** Combine smaller orders into larger shipments for same delivery zones to reduce trips, shipping costs, and environmental impact.
- **Reduce Cancellations and Returns:** Improve customer communication, product quality and packaging to minimize rate of cancellations, returns, and reverse logistics costs.

WAREHOUSE OPTIMISATION:

Objective: Identify potential warehouse locations based on customer demand distribution to improve shipping efficiency and reduce delivery times.

Key Findings:

- **Capacity Issue:** When *current inventory (cubic ft)* exceeds *warehouse capacity (cubic ft)*.
- **Inventory Shortage:** When *current inventory (numbers)* exceeds *capacity (numbers)*.

Identified Problematic Locations: Four warehouse locations have been flagged with capacity and inventory issues- *Hyderabad, Ahmedabad, Chandigarh & Dehradun.*

WAREHOUSE OPTIMISATION:

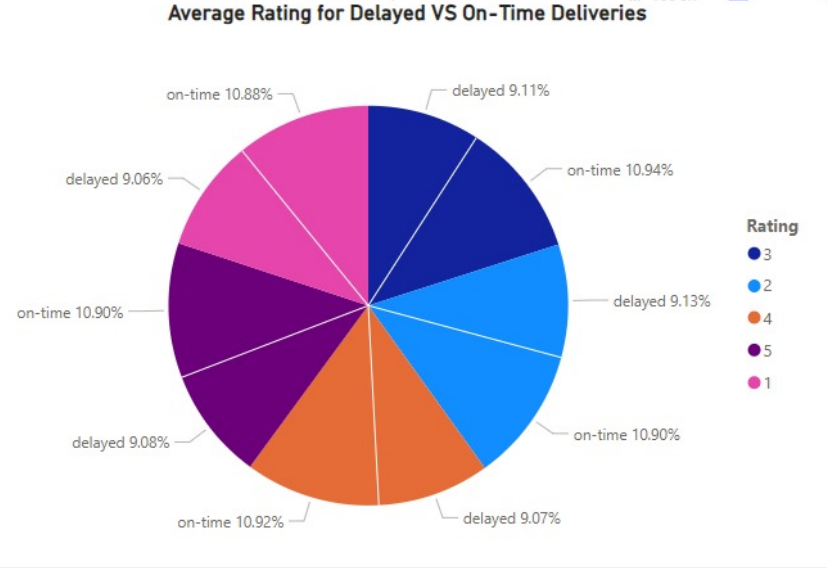
Proposed Solutions:

- **Expand warehouse capacity** where feasible.
- **Shift excess inventory** to nearby warehouses with available space.
- **Prioritize shipping** of current inventory to create space for new stock.

Location	Capacity	Current Inventory	Capacity Numbers	Current Inventory Numbers
Hyderabad	8806	39936	3404	5050
Ahmedabad	23718	26273	8948	15224
Chandigarh	25853	39665	1563	11025
Dehradun	10874	14560	4436	5194

CUSTOMER SATISFACTION AND DELIVERY IMPACT:

Objective: Explore the relationship between delivery speed and customer satisfaction, identifying how delays affect customer retention and overall satisfaction.



Deliveries taking more than 6 days are considered to be 'delayed' while those delivered within 6 days are 'on-time'.

Key Findings:

- Average Dispatch Time: 1 day
- Average Shipping Time: 6 days
- Approx. **9%** of orders across all ratings are delivered late, affecting overall customer satisfaction.

CUSTOMER SATISFACTION AND DELIVERY IMPACT:

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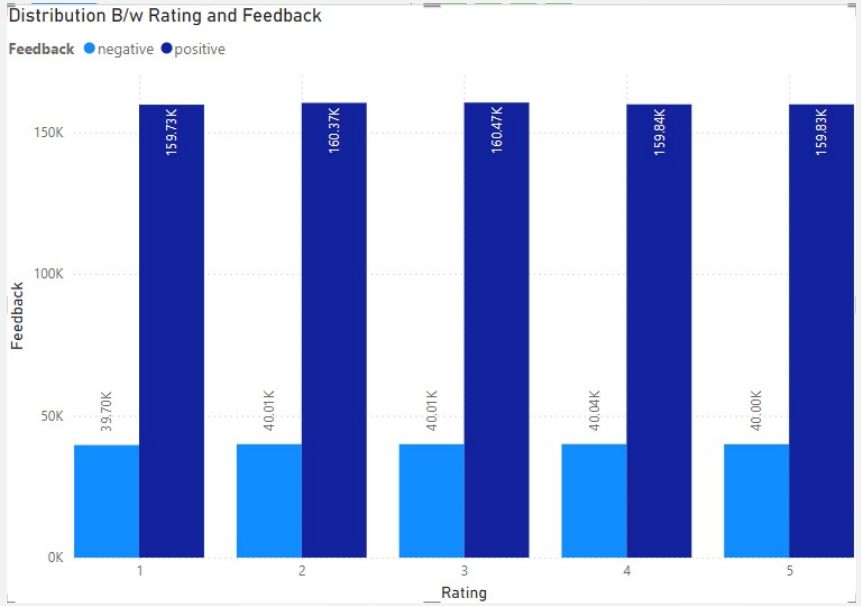
Solutions:

- By optimizing delivery routes, we can minimize late deliveries and improve low-rated experiences.
- Inform customers of anticipated delays to maintain trust and satisfaction, even if delivery is late.
- Offer discounts, vouchers, or free shipping for delayed orders to offset dissatisfaction and encourage repeat purchases.



Negative feedback hovers around 40K for each rating, indicating room for improvement in customer satisfaction at lower ratings.

Analysis is done using Python, MS Power BI, SQL and MS Excel.