Supply chain Dashboard

Vemuri Bharath Kumar
M.S Data Science
Tools: Excel and PowerBI

Problem statement

AtliQ Mart is a growing FMCG manufacturer headquartered in Gujarat, India. It is currently operational in three cities Surat, Ahmedabad and Vadodara. They want to expand to other metros/Tier 1 cities in the next 2 years.

AtliQ Mart is currently facing a problem where a few key customers did not extend their annual contracts due to service issues. It is speculated that some of the essential products were either not delivered on time or not delivered in full over a continued period, which could have resulted in bad customer service. Management wants to fix this issue before expanding to other cities and requested their supply chain analytics team to track the 'On time' and 'In Full' delivery service level for all the customers daily basis so that they can respond swiftly to these issues.

The Supply Chain team decided to use a standard approach to measure the service level in which they will measure 'On-time delivery (OT) %', 'In-full delivery (IF) %', and OnTime in full (OTIF) %' of the customer orders daily basis against the target service level set for each customer.

SUPPLY CHAIN DASHBOARD

IF%
52.78% ⬜
Goal: 0.77 (-31.02%)
2022

OTIF%
29.02% ⬜
Goal: 65.91% (-55.97%)
2022

OT%
59.03% ⬜
Goal: 86.09% (-31.43%)
2022

SPLIT BY CUSTOMER

customer_id	Ot%	LIFR%	if%	VOFR%	otif%
789101	59.03%	74.42%	52.78%	97.34%	29.02
789102	59.03%	73.70%	52.78%	97.29%	29.02
789103	59.03%	29.89%	52.78%	93.05%	29.02
789121	59.03%	74.02%	52.78%	97.39%	29.02
789122	59.03%	29.19%	52.78%	92.83%	29.02
789201	59.03%	74.74%	52.78%	97.52%	29.02
789202	59.03%	74.73%	52.78%	97.37%	29.02
789203	59.03%	74.14%	52.78%	97.39%	29.02
789220	59.03%	75.69%	52.78%	97.61%	29.02
789221	59.03%	75.26%	52.78%	97.54%	29.02
789301	59.03%	73.27%	52.78%	97.38%	29.02
789303	59.03%	77.36%	52.78%	97.70%	29.02
789320	59.03%	75.58%	52.78%	97.56%	29.02
789321	59.03%	75.64%	52.78%	97.61%	29.02
789401	59.03%	75.05%	52.78%	97.65%	29.02
789402	59.03%	75.80%	52.78%	97.76%	29.02
789403	59.03%	76.03%	52.78%	97.71%	29.02
789420	59.03%	74.83%	52.78%	97.44%	29.02
789421	59.03%	30.77%	52.78%	93.22%	29.02
789422	59.03%	74.05%	52.78%	97.27%	29.02
Total	59.03%	65.96%	52.78%	96.59%	29.02

Total_ordered
13.427M
Sum of order_qty

Total_delivered
12.969M
Sum of delivery_qty

VOFR%
96.59%

LIFR%
65.96%
LIFR%

SPLIT BY CITY

| city	otif%	Ot%	OT_avg	OTF_avg	if%	IF_avg
Ahmedabad	29.02%	59.03%	85.83%	66.50%	52.78%	0.77
Surat	29.02%	59.03%	86.27%	66.36%	52.78%	0.77
Vadodara	29.02%	59.03%	86.17%	64.92%	52.78%	0.75
Total	29.02%	59.03%	86.09%	65.91%	52.78%	0.77

VOFR %& LIFR % WEEKLY

product_name	LIFR%	VOFR%	VOFR% by Week_number	LIFR%	LIFR% by Week_number
AM Biscuits 250	65.16%	96.58%		65.16%	
AM Biscuits 500	66.10%	96.49%		66.10%	
AM Biscuits 750	68.05%	96.85%		68.05%	
AM Butter 100	66.66%	96.59%		66.66%	
AM Butter 250	63.52%	96.36%		63.52%	
AM Butter 500	65.19%	96.46%		65.19%	
AM Curd 100	66.73%	96.62%		66.73%	
AM Curd 250	67.05%	96.72%		67.05%	
AM Curd 50	65.55%	96.62%		65.55%	
AM Ghee 100	65.75%	96.59%		65.75%	
AM Ghee 150	66.72%	96.69%		66.72%	
AM Ghee 250	65.25%	96.53%		65.25%	
AM Milk 100	65.55%	96.54%		65.55%	
AM Milk 250	65.91%	96.61%		65.91%	
AM Milk 500	67 51%	96 71%		67 51%	
Total	**65.96%**	**96.59%**		**65.96%**	

ORDERED VS DELIVERED

● Sum of order_qty ● Sum of delivery_qty

	Dairy	Food	beverages
order	10.6M	1.7M	1.2M
delivery	10.2M	1.6M	1.1M
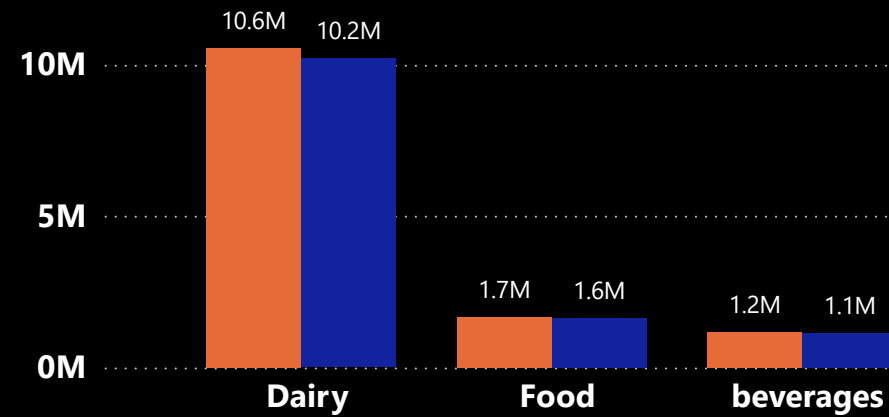
CITY VS NOT-DELIVERED

● Ahmedabad ● Surat ● Vadodara

- 149K (32.62%)
- 168K (36.72%)
- 140K (30.67%)
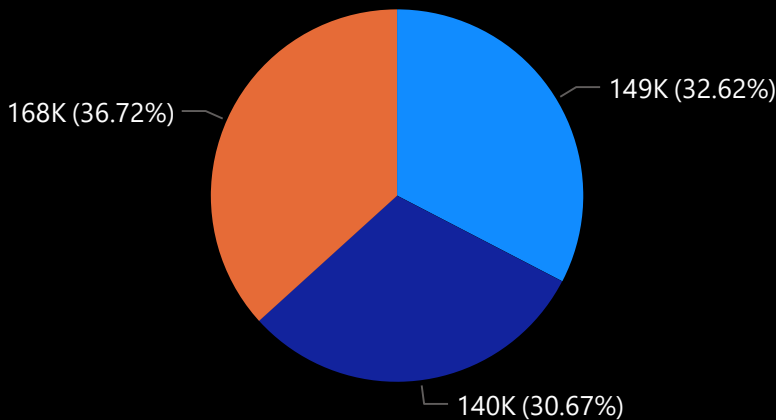
| Select all | Ahmedabad | Surat | Vadodara |

Sum of order_qty by product_name

Product	
AM Milk 250	
AM Milk 100	
AM Milk 500	
AM Curd 50	
AM Curd 100	
AM Curd 250	
AM Butter 500	
AM Butter 100	
AM Butter 250	
AM Biscuits 250	
AM Biscuits 500	
AM Biscuits 750	
AM Tea 500	

X-axis: 0.0M — 0.5M — 1.0M

Sum of order_qty by Month

Y-axis: 2200K — 2250K — 2300K
X-axis: May — Mar — Jul — Apr — Jun — Aug
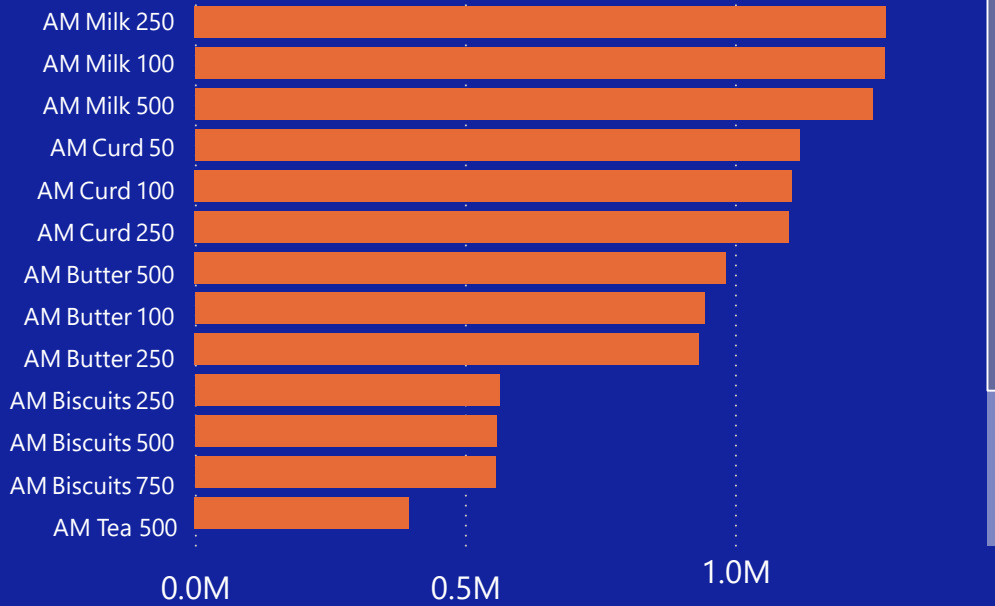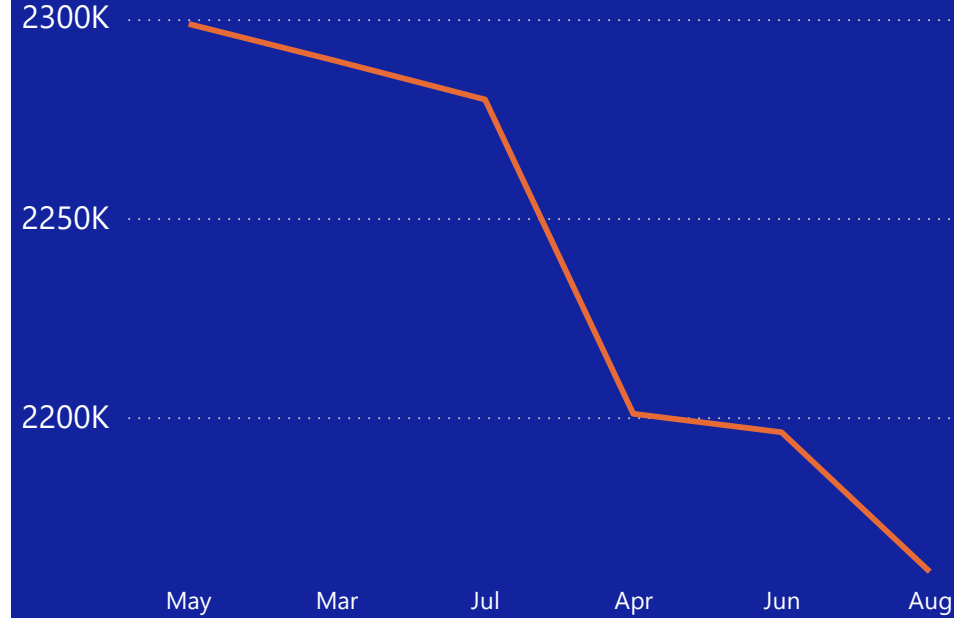
Sum of order_qty
13.43M

Sum of delivery_qty
12.97M

Sum of order_qty by customer_name

Y-axis: 0.0M — 0.5M — 1.0M

Vijay Stores — Lotus Mart — Rel Fresh — Propel Mart — Acclaimed Stores — Expert Mart — Coolblue — Elite Mart — Expression Stores — Info Stores — Sorefoz Mart — Atlas Stores — Viveks Stores — Chiptec Stores — Logic Stores
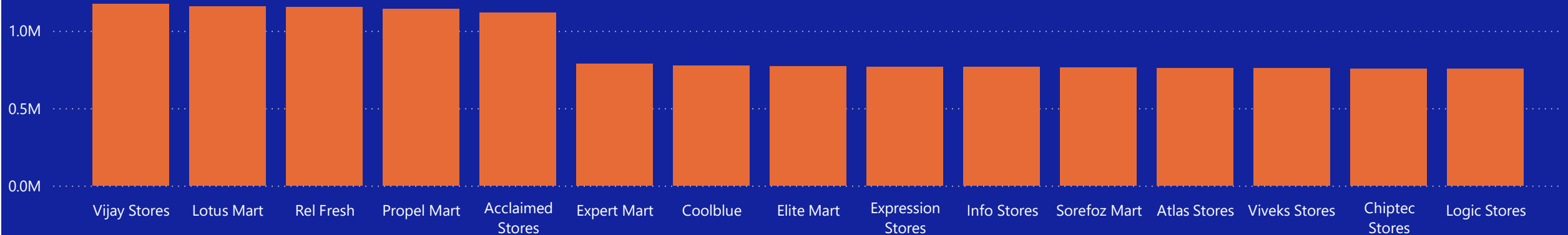
Analysis Report

1. Key Performance Indicators (KPIs):

•**IF% (In-Full Percentage)**: 52.78% (Goal: 86.09%)

- This KPI is significantly below the target, with a gap of -31.43%. Improvement in delivering complete orders is needed.

•**OT% (On-Time Percentage)**: 59.03% (Goal: 65.91%)

- On-time delivery also lags behind, with a gap of -55.97%, indicating late deliveries are an issue.

•**OTIF% (On-Time In-Full Percentage)**: 29.02%

- OTIF%, a combination of timely and complete deliveries, is low across the board, reflecting inefficiencies.

2. City-Level Performance:

•The cities of **Ahmedabad**, **Surat**, and **Vadodara** show the same OTIF% at 29.02%, and OT% at 59.03%.

•**LIFR% (Line Item Fill Rate)** varies, with Surat at 86.27%, indicating relatively better fulfillment, while Ahmedabad and Vadodara are slightly behind.

•**Sum of Ordered vs Delivered Quantities**:

- **Ahmedabad** ordered 149K items, but 32.62% were not delivered.
- **Surat** ordered 140K, with 30.67% undelivered.
- **Vadodara** ordered 168K, but 36.72% remained undelivered, the highest among the cities.

Analysis Report

3. Product-Level Insights:

•**Product Performance**:
- **AM Milk 500** shows a higher LIFR% (67.51%) compared to other dairy products.
- Across product categories (milk, biscuits, butter, curd), the LIFR% and VOFR% (Volume Order Fill Rate) are generally consistent, with LIFR% ranging from 63.52% to 68.05%.
- **VOFR%** remains strong across products, all near or above 96%, suggesting that while deliveries may not be timely, the volume of what is delivered is meeting expectations.

•**Order vs. Delivery**:
- Total ordered quantity across all products was **13.43M**, and the total delivered quantity was **12.97M**.
- The difference indicates an overall shortfall in delivery, suggesting either logistical challenges or supply issues.

4. Customer-Specific Insights:
•Customers like **Vijay Stores**, **Lotus Mart**, and **Rel Fresh** have higher order volumes, while others like **Chiptec Stores** and **Logic Stores** order in smaller amounts.
•Performance by customer shows consistency in OTIF%, with little variation among different customer accounts.

5. Monthly Trends:
•There is a relatively stable monthly ordering pattern, with small variations seen between May, March, July, April, June, and August.
•**May** had the highest sum of ordered quantity (~2250K) compared to other months.

Ker Insights & Area of Improvement

Key Insights:

•The supply chain struggles with timely and complete deliveries (low OTIF%).

•**LIFR%** and **VOFR%** are relatively high, suggesting that the system can fulfill large volumes but struggles to meet deadlines or full order quantities on time.

•Performance varies between cities, with Vadodara showing the highest rate of undelivered orders.

•Products like **AM Milk 500** and **AM Biscuits 750** perform better in terms of fulfillment.

Areas of Improvement:

•Addressing the delays and improving the **On-Time** performance is critical.

•Investigating supply chain bottlenecks in cities like Vadodara and products with low LIFR%.

•Improving the **In-Full percentage (IF%)** should be a priority, given its gap from the target.