Power BI Project Outline:

ATLIQ MART SUPPLY CHAIN

1. **Overview**

Atliq Mart has currently faced a challenge in their supply chain: their customers do not renew the contract. The Director and Head of supply chain are very concerned about the problem so they ask data analysis team for a dashboard which could help them track some key metrics in the company's supply performance. They suppose that this happens because of slow and inefficient delivery. They want to know everything happening in their service level delivery system, including whether or not they ship on time and in full to the customer.

2. **Requirement**

Note: OT (OT); IF (IF); OTIF (OTIF)

- Order shipment tracking on a daily basis: OT percentage, IF package and OTIF percentage. This requirement has to be presented in order level as well as be split by city.
- OT percentage, IF percentage and OT IF percentage with respect to their targets, applied the same for city split and customer split.
- OT percentage, IF percentage, OTIF percentage performance versus their target over month, drillable for week number as well.
- Line full rate and volume full rate tracking
- Line full rate and volume full rate matrix for product, conditional formatting comparing between products, and sparkline by date.

3. **Metric explanations**

- Orders are a unique request placed by a customer on a given date.
- Order lines: Each of the items requested within the order is called an order line.

- Line Fill rate: how many lines they shipped out of the total lines ordered. This metric does not consider the delivery time of the order.
- Volume fill rate or case fill: the total quantity they are able to ship for a customer per order or for a given period of time.

Example: You order 4 notebooks and 2 pens. Amazon is able to ship you 4 notebooks and 1 pen.

The line item pen is failed because you requested 2 nos. So, Line Fill Rate for Amazon for your order is order lines fulfilled / lines ordered => 1/2 => 50 %.

Volume Fill rate will be total quantity shipped / total quantity ordered => 5/6 => 83 %

- OT delivery %: Unlike Line Fill Rate, this measure is measured at the order level. It determines if an order is delivered as per the agreed time with the customer. An order is OT only when all the line items inside the order is delivered OT.
- IF delivery %: Unlike Line Fill Rate, this measure is measured at the order level. It determines if an order is delivered IF as per the requested quantity by the customer. An order is IF only when all the line items inside the order are delivered IF.
- Unlike Line Fill Rate, this measure is measured at the order level. It determines if an order is delivered BOTH IF and OT as per the customer order request.

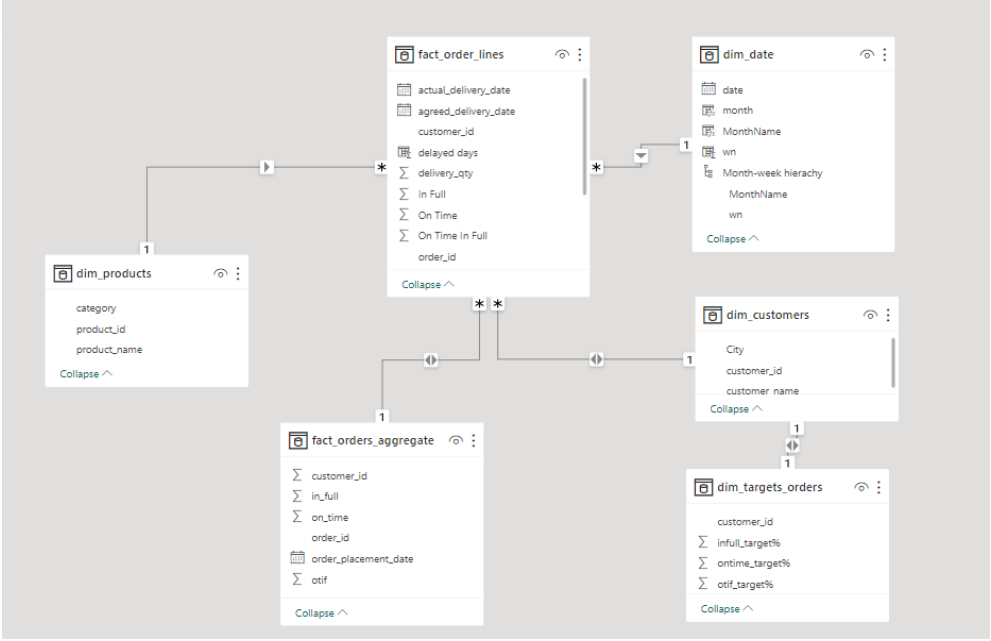
4. How I do my analysis

a. Visualization layout

This dashboard is separated into 4 pages representing different main goal/level of the requirement:

- Orders: All the information at the order level (total orders as well as their segmentation by status OT, IF or OTIF; OT%, IF%, OTIF% vs their target, those metrics split by cities.
- Order Line: total order lines, total items shipped, total items ordered, total order line fully filled, LIFR%, VOFR%; LIFR% and VOFR% split by products.
- Trend: OT%, IF%, OTIF%, LIFR%, VOFR% change over month and week, split by cities and by products.
- Service level: main metrics tracking in each stores compared to their target (achieved or not)

b. Data cleaning and Modeling



c. Metric calculations

Total orders = COUNT(fact_orders_aggregate[order_id])

Total orders OT = CALCULATE(count(fact_orders_aggregate[order_id]),fact_orders_aggregate[on_time]=1)

Total orders IF = CALCULATE(count(fact_orders_aggregate[order_id]),fact_orders_aggregate[in_full]=1)

Total orders OT & IF = CALCULATE(count(fact_orders_aggregate[order_id]),fact_orders_aggregate[otif]=1)

Total order lines = COUNT(fact_order_lines[order_id])

Total order lines fully filled = CALCULATE([Total order lines],fact_order_lines[In Full]=1)

Total items ordered = sum(fact_order_lines[order_qty])

Total items delivered = sum(fact_order_lines[delivery_qty])

LIFR% = DIVIDE([Total order lines fully filled],[Total order lines])

VOFR% = DIVIDE([Total items delivered],[Total items ordered])

OT Reality % = CALCULATE(SUM(fact_orders_aggregate[on_time]),fact_orders_aggregate[on_time]=1)/[Total Orders]*100

IF Reality % = CALCULATE(SUM(fact_orders_aggregate[in_full]),fact_orders_aggregate[in_full]=1)/[Total Orders]*100

OTIF Reality % = CALCULATE(SUM(fact_orders_aggregate[otif]),fact_orders_aggregate[otif]=1)/[Total Orders]*100

In full target = AVERAGE(dim_targets_orders[infull_target%])

On time target = AVERAGE(dim_targets_orders[ontime_target%])

OTIF Target = AVERAGE(dim_targets_orders[otif_target%])

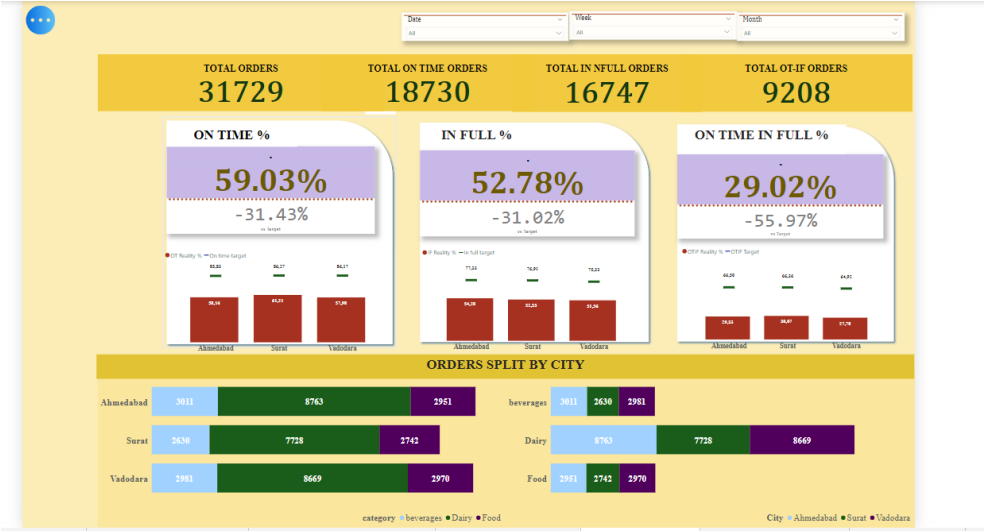
d. Other convenient functions

Page navigation: this allows users to switch between pages easily, it also brings better interactive experience to users like they are searching websites.

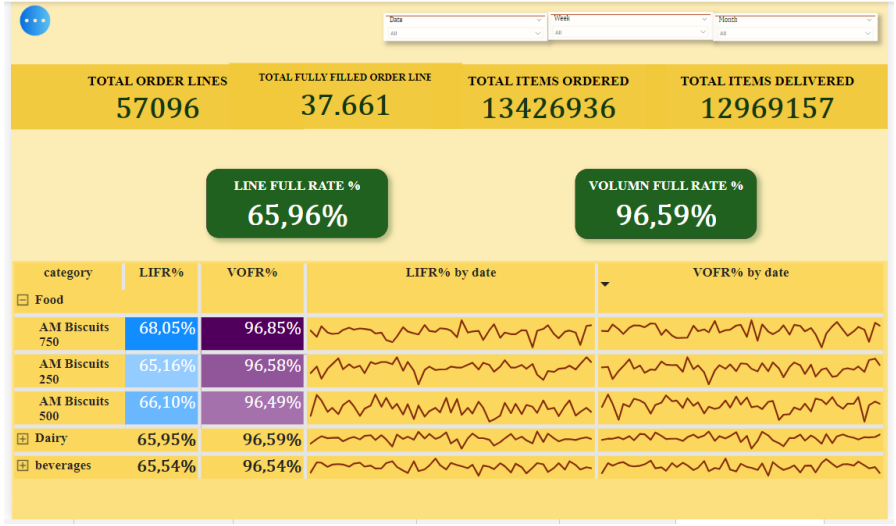
Switch visuals (using bookmark): this function allows end users to switch between different KPI Metric trending without turning to different pages. It helps save space effectively.

Customized target slicer (using Field parameter: this function allows users to choose the target for LIFR% and VOFR% to check if the customers achieved or not, given that dataset does not supply target information for these metrics.

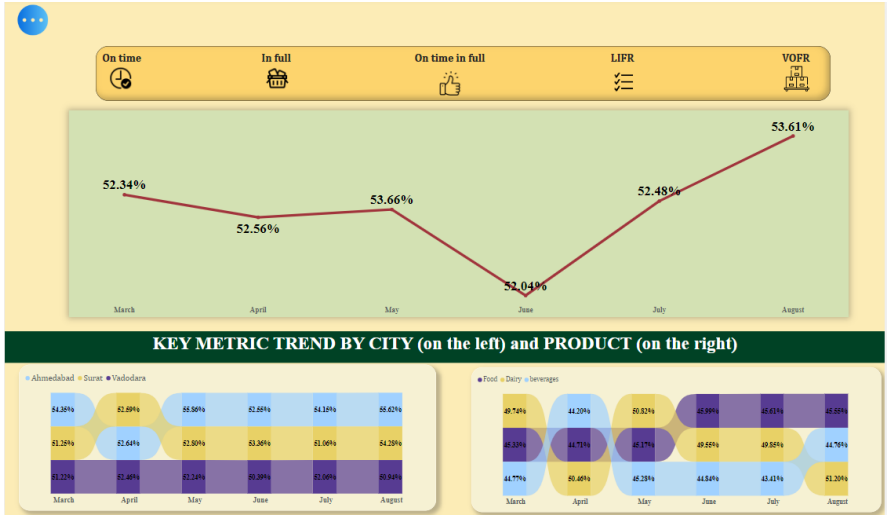
5. Visualization:



ORDER



ORDER LINES



TREND

SERVICE LEVEL