NCPL SALES

Power BI Project: Real-Time Operational Monitoring Dashboard

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Introduction

Project Name:

Real-Time Logistic Delivery Data Analysis – Delivery Hero

Objective:

The **Logistic Delivery Data Analysis** project was developed to provide a comprehensive evaluation of the company's logistics operations, delivery performance, and revenue trends across multiple regions. The objective was to leverage data analytics to enhance decision-making, optimize supply chain efficiency, and improve overall service quality.

The project involved the analysis of shipment and sales data from **January 2022 to December 2024**, focusing on key operational metrics such as total shipments, revenue generation, delivery timelines, completion rates, and return ratios. The data was transformed into an interactive **PowerBI dashboard**, enabling clear visualization of performance indicators and real-time business insights.

Through this analysis, the project aims to:

- Assess **shipment performance and revenue contribution** across different regions and time periods.
- Monitor **sales representative productivity and efficiency** in managing deliveries.
- Identify **operational bottlenecks**, particularly in regions with longer delivery cycles or higher return rates.
- Evaluate **product category performance** to inform strategic inventory and marketing decisions.

The dashboard serves as a **strategic management tool**, allowing stakeholders to monitor logistics operations at a glance, track performance trends, and make data-driven decisions that enhance profitability and customer satisfaction.

Project Steps

Project Steps:

1. **Data Collection:**
   - Extracted data from Delivery Hero's order management system, customer service platform, and partner restaurant inventory databases.
2. **Data Integration:**
   - Consolidated multiple data sources including internal delivery logs, Salesforce CRM, and restaurant POS systems using **SQL** and ETL pipelines.
3. **Data Cleaning & Transformation:**
   - Cleansed and standardized delivery, customer, and inventory data for accurate reporting.
   - Transformed raw data into metrics suitable for real-time visualization.
4. **Real-Time Dashboard Creation:**
   - Built interactive dashboards in **Power BI** to track different KPI's:
5. **Alert Mechanism:**
   - Implemented automated email and Slack alerts for:
     - Delayed deliveries exceeding SLA thresholds.
6. **Automation:**
   - Scheduled automated data refresh cycles to ensure dashboards reflect live operational metrics.
7. **Performance Optimization:**
   - Optimized dashboards to handle large volumes of delivery and customer data with minimal latency.

Tools & Technologies

Power BI: Data Cleaning and Real-time dashboard development.

Cloud Platforms: Power BI Services.

Deliverables

Interactive real-time operational dashboards for Delivery Hero management.

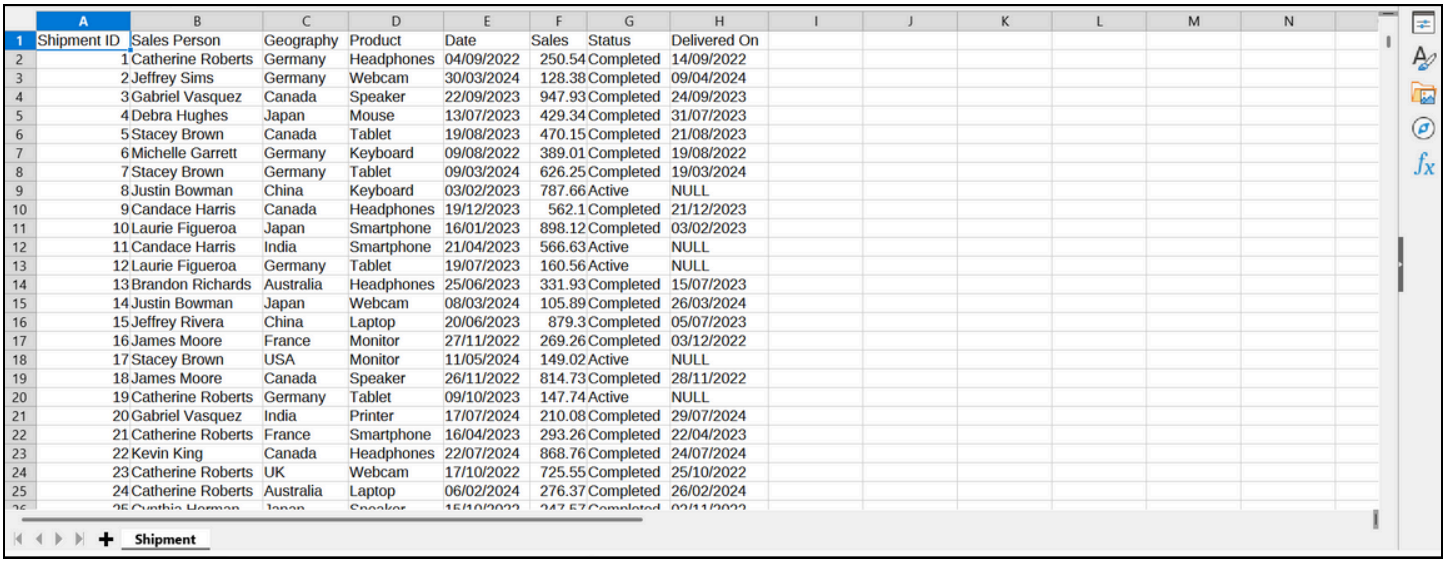
Automated alerting system for delivery time anomalies.

Live performance tracking report enabling quick decision-making for operations teams.

Dataset Overview (Metadata)

File:

Shipments Table

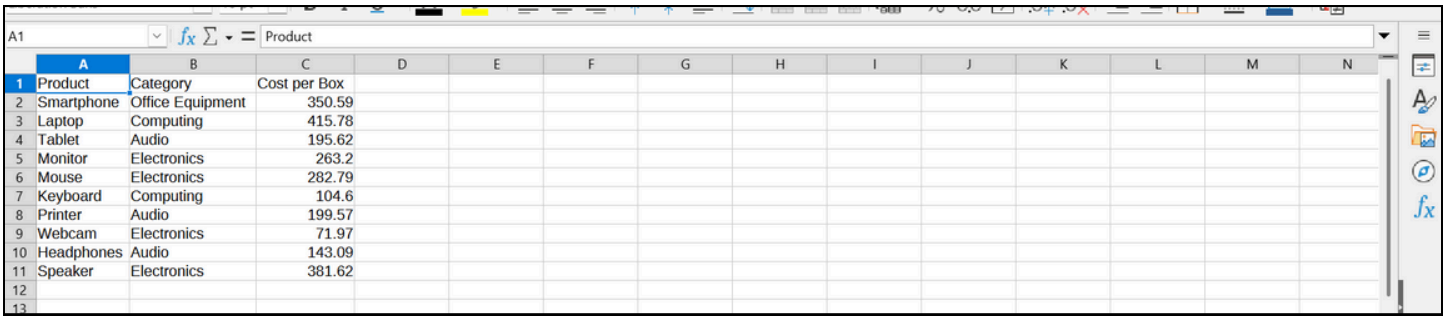


Shipment ID	Sales Person	Geography	Product	Date	Sales	Status	Delivered On
1	Catherine Roberts	Germany	Headphones	04/09/2022	250.54	Completed	14/09/2022
2	Jeffrey Sims	Germany	Webcam	30/03/2024	128.38	Completed	09/04/2024
3	Gabriel Vasquez	Canada	Speaker	22/09/2023	947.93	Completed	24/09/2023
4	Debra Hughes	Japan	Mouse	13/07/2023	429.34	Completed	31/07/2023
5	Stacey Brown	Canada	Tablet	19/08/2023	470.15	Completed	21/08/2023
6	Michelle Garrett	Germany	Keyboard	09/08/2022	389.01	Completed	19/08/2022
7	Stacey Brown	Germany	Tablet	09/03/2024	626.25	Completed	19/03/2024
8	Justin Bowman	China	Keyboard	03/02/2023	787.66	Active	NULL
9	Candace Harris	Canada	Headphones	19/12/2023	562.1	Completed	21/12/2023
10	Laurie Figueroa	Japan	Smartphone	16/01/2023	898.12	Completed	03/02/2023
11	Candace Harris	India	Smartphone	21/04/2023	566.63	Active	NULL
12	Laurie Figueroa	Germany	Tablet	19/07/2023	160.56	Active	NULL
13	Brandon Richards	Australia	Headphones	25/06/2023	331.93	Completed	15/07/2023
14	Justin Bowman	Japan	Webcam	08/03/2024	105.89	Completed	26/03/2024
15	Jeffrey Rivera	China	Laptop	20/06/2023	879.3	Completed	05/07/2023
16	James Moore	France	Monitor	27/11/2022	269.26	Completed	03/12/2022
17	Stacey Brown	USA	Monitor	11/05/2024	149.02	Active	NULL
18	James Moore	Canada	Speaker	26/11/2022	814.73	Completed	28/11/2022
19	Catherine Roberts	Germany	Tablet	09/10/2023	147.74	Active	NULL
20	Gabriel Vasquez	India	Printer	17/07/2024	210.08	Completed	29/07/2024
21	Catherine Roberts	France	Smartphone	16/04/2023	293.26	Completed	22/04/2023
22	Kevin King	Canada	Headphones	22/07/2024	868.76	Completed	24/07/2024
23	Catherine Roberts	UK	Webcam	17/10/2022	725.55	Completed	25/10/2022
24	Catherine Roberts	Australia	Laptop	06/02/2024	276.37	Completed	26/02/2024

Columns:

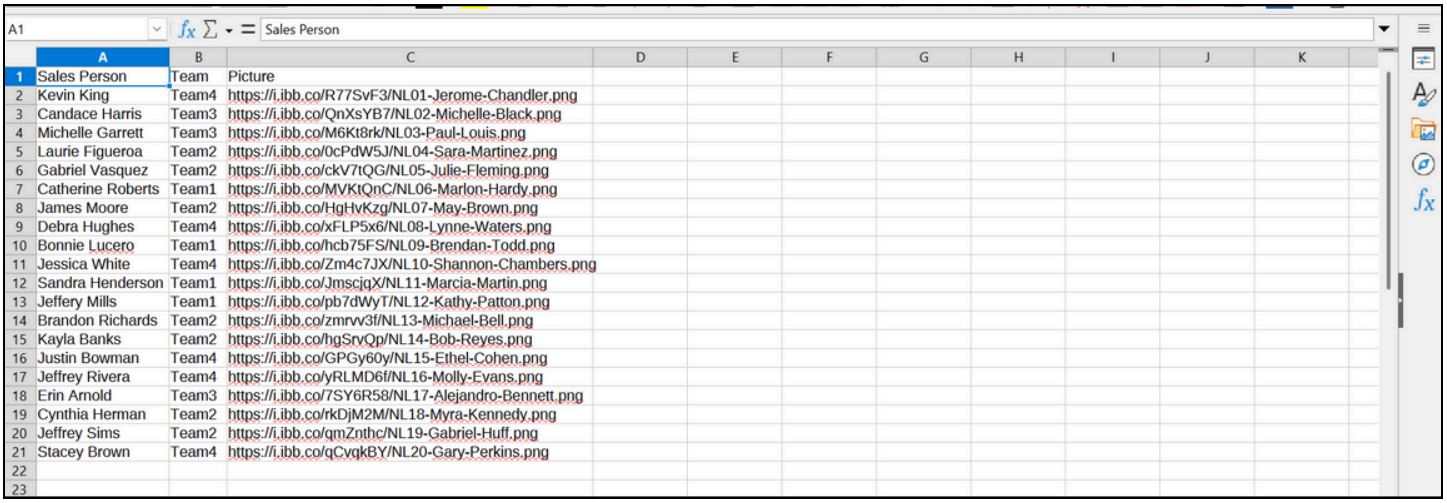
Column Name	Description	Example Values
Date	Shipment or transaction date	04/09/2022
Country	Destination country or region	USA, India
Sales Person	Name of the salesperson handling the shipment	Jessica White
Product Category	Product type or category	Electronics, Audio
Shipment ID	Unique identifier for each shipment	SHP-001245
Shipment Status	Current status of the shipment	Completed, Active, Returned
Region	Geographic classification for analysis	North America, Asia-Pacific
Delivered On	Delivery date	14/09/2022

Product Table:



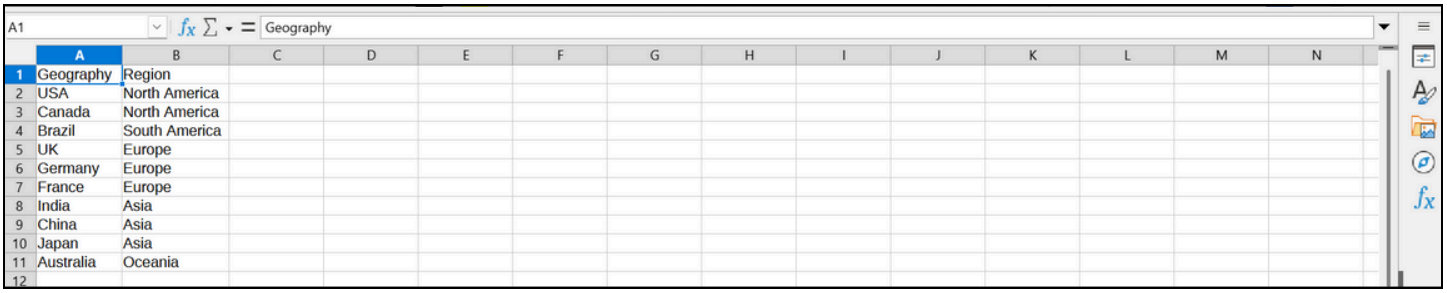
	A	B	C
1	Product	Category	Cost per Box
2	Smartphone	Office Equipment	350.59
3	Laptop	Computing	415.78
4	Tablet	Audio	195.62
5	Monitor	Electronics	263.2
6	Mouse	Electronics	282.79
7	Keyboard	Computing	104.6
8	Printer	Audio	199.57
9	Webcam	Electronics	71.97
10	Headphones	Audio	143.09
11	Speaker	Electronics	381.62

SalesPerson Table:



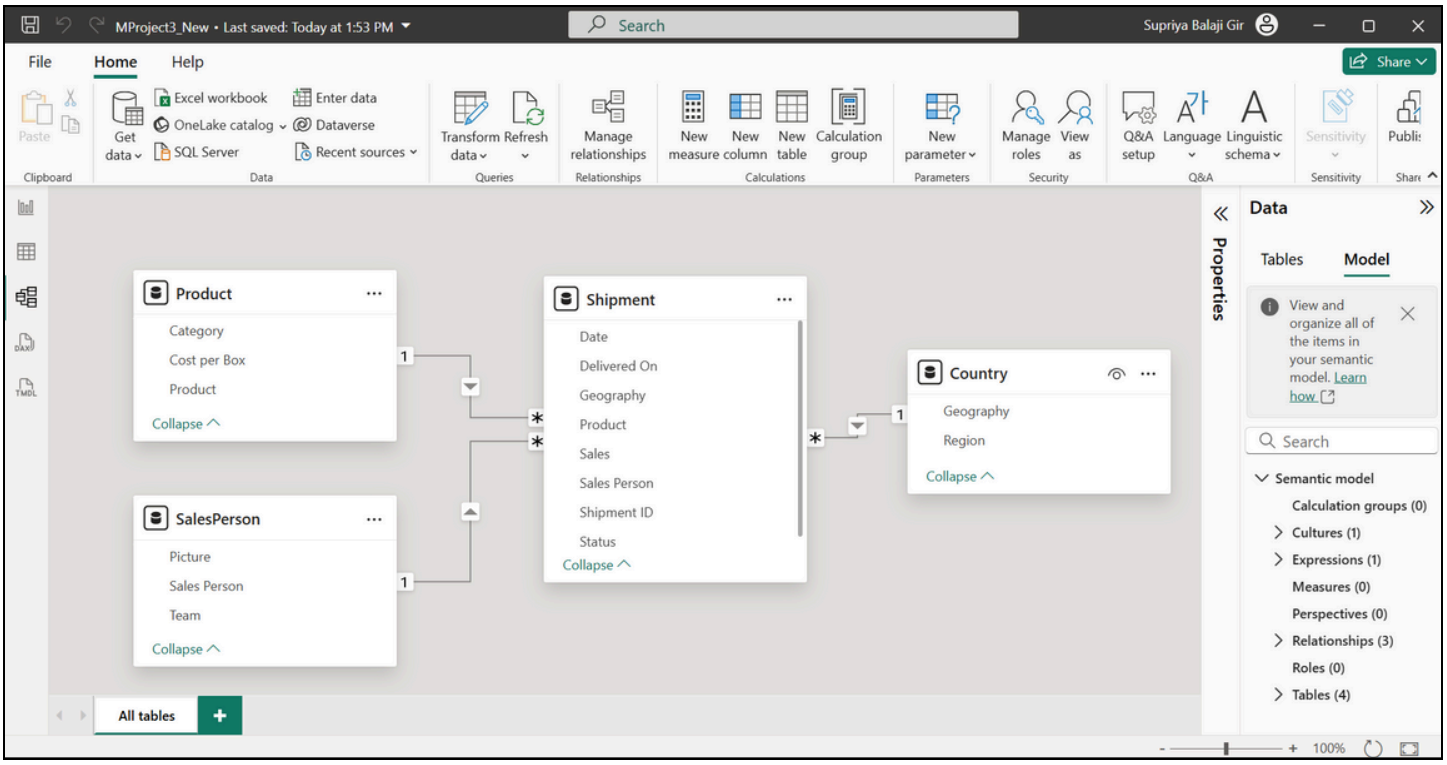
	A	B	C
1	Sales Person	Team	Picture
2	Kevin King	Team4	https://i.ibb.co/R77SvF3/NL01-Jerome-Chandler.png
3	Candace Harris	Team3	https://i.ibb.co/QnXsYB7/NL02-Michelle-Black.png
4	Michelle Garrett	Team3	https://i.ibb.co/M6Kt8rk/NL03-Paul-Louis.png
5	Laurie Figueroa	Team2	https://i.ibb.co/0cPdW5J/NL04-Sara-Martinez.png
6	Gabriel Vasquez	Team2	https://i.ibb.co/ckV7tQG/NL05-Julie-Fleming.png
7	Catherine Roberts	Team1	https://i.ibb.co/MVKtQnC/NL06-Marlon-Hardy.png
8	James Moore	Team2	https://i.ibb.co/HgHvKzg/NL07-May-Brown.png
9	Debra Hughes	Team4	https://i.ibb.co/xFLP5x6/NL08-Lynne-Waters.png
10	Bonnie Lucero	Team1	https://i.ibb.co/hcb75FS/NL09-Brendan-Todd.png
11	Jessica White	Team4	https://i.ibb.co/Zm4c7JX/NL10-Shannon-Chambers.png
12	Sandra Henderson	Team1	https://i.ibb.co/JmscjqX/NL11-Marcia-Martin.png
13	Jeffery Mills	Team1	https://i.ibb.co/pb7dWyT/NL12-Kathy-Patton.png
14	Brandon Richards	Team2	https://i.ibb.co/zmrvv3f/NL13-Michael-Bell.png
15	Kayla Banks	Team2	https://i.ibb.co/hgSrvQp/NL14-Bob-Reyes.png
16	Justin Bowman	Team4	https://i.ibb.co/GPGy60y/NL15-Ethel-Cohen.png
17	Jeffrey Rivera	Team4	https://i.ibb.co/yRLMD6f/NL16-Molly-Evans.png
18	Erin Arnold	Team3	https://i.ibb.co/7SY6R58/NL17-Alejandro-Bennett.png
19	Cynthia Herman	Team2	https://i.ibb.co/rkDjM2M/NL18-Myra-Kennedy.png
20	Jeffrey Sims	Team2	https://i.ibb.co/qmZnthc/NL19-Gabriel-Huff.png
21	Stacey Brown	Team4	https://i.ibb.co/qCvqkBY/NL20-Gary-Perkins.png

Country Table:



	A	B
1	Geography	Region
2	USA	North America
3	Canada	North America
4	Brazil	South America
5	UK	Europe
6	Germany	Europe
7	France	Europe
8	India	Asia
9	China	Asia
10	Japan	Asia
11	Australia	Oceania

Model View:


MProject3_New • Last saved: Today at 1:53 PM
Search
Supriya Balaji Gir
File
Home
Help
Share
Paste
Get data
Excel workbook
OneLake catalog
SQL Server
Enter data
Dataverse
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Transform data
Refresh
Manage relationships
New measure
New column
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Q&A setup
Language
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Clipboard
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Queries
Relationships
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Parameters
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Product
Category
Cost per Box
Product
Collapse
SalesPerson
Picture
Sales Person
Team
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Sales Person
Shipment ID
Status
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Geography
Region
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1
*
All tables
Properties
Data
Tables
Model
View and organize all of the items in your semantic model. Learn how
Search
Semantic model
Calculation groups (0)
Cultures (1)
Expressions (1)
Measures (0)
Perspectives (0)
Relationships (3)
Roles (0)
Tables (4)
100%

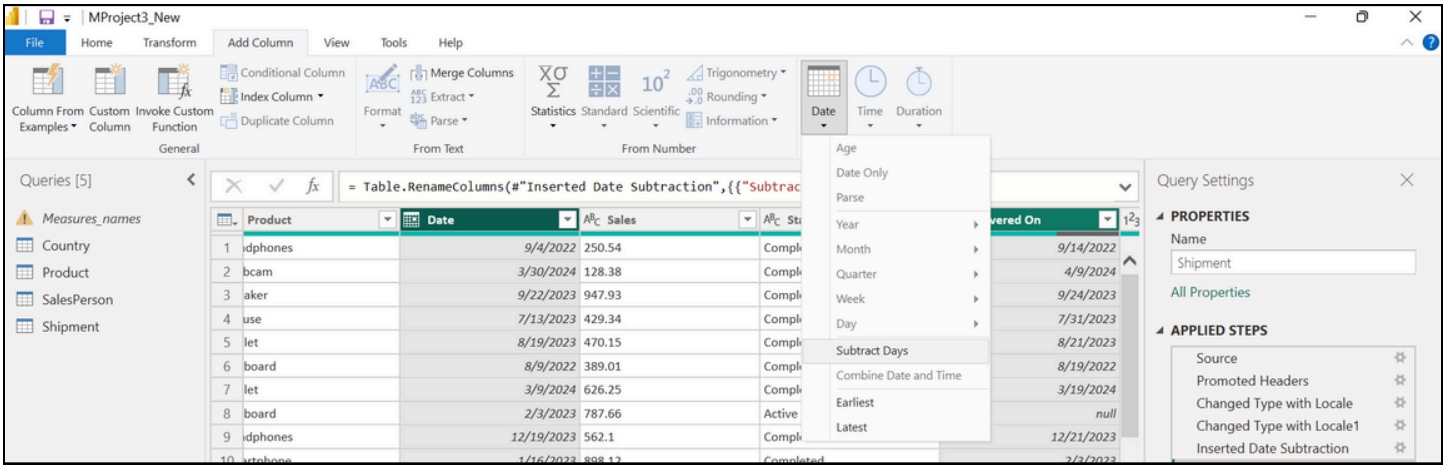
Step 2: Define KPI's

KPI Name	Definition / Formula	Purpose / Insight
Total Revenue ($)	Sum of all revenue generated from completed shipments.	Measures the overall financial performance of logistics operations.
Total Shipments	Count of all shipment records within the selected period.	Indicates overall business activity and shipping volume.
Completed Shipments	Count of shipments successfully delivered.	Reflects operational efficiency and fulfillment success.
Active Shipments	Count of shipments still in progress or pending delivery.	Helps monitor real-time logistics workload and delivery pipeline.
Returned Shipments	Count of shipments that were returned or cancelled.	Measures the return rate and customer satisfaction level.
Average Delivery Time (Days)	Average number of days taken to complete a delivery. **Formula:** Total Delivery Days / Completed Shipments	Assesses delivery speed and logistics efficiency.
Shipment Completion Rate (%)	(Completed Shipments / Total Shipments) × 100	Evaluates the percentage of successful deliveries.
Shipment Return Rate (%)	(Returned Shipments / Total Shipments) × 100	Tracks product return trends and identifies service issues.
Active Shipment Rate (%)	(Active Shipments / Total Shipments) × 100	Indicates the proportion of shipments currently in transit.
Top Performing Salesperson	Highest revenue or completion rate among sales staff.	Recognizes employee efficiency and identifies best practices.
Average Delivery Time by Country	Mean delivery duration by geographic location.	Highlights regional logistics performance differences.
Revenue Contribution by Product Category (%)	(Category Revenue / Total Revenue) × 100	Identifies the share of each product segment in total revenue.

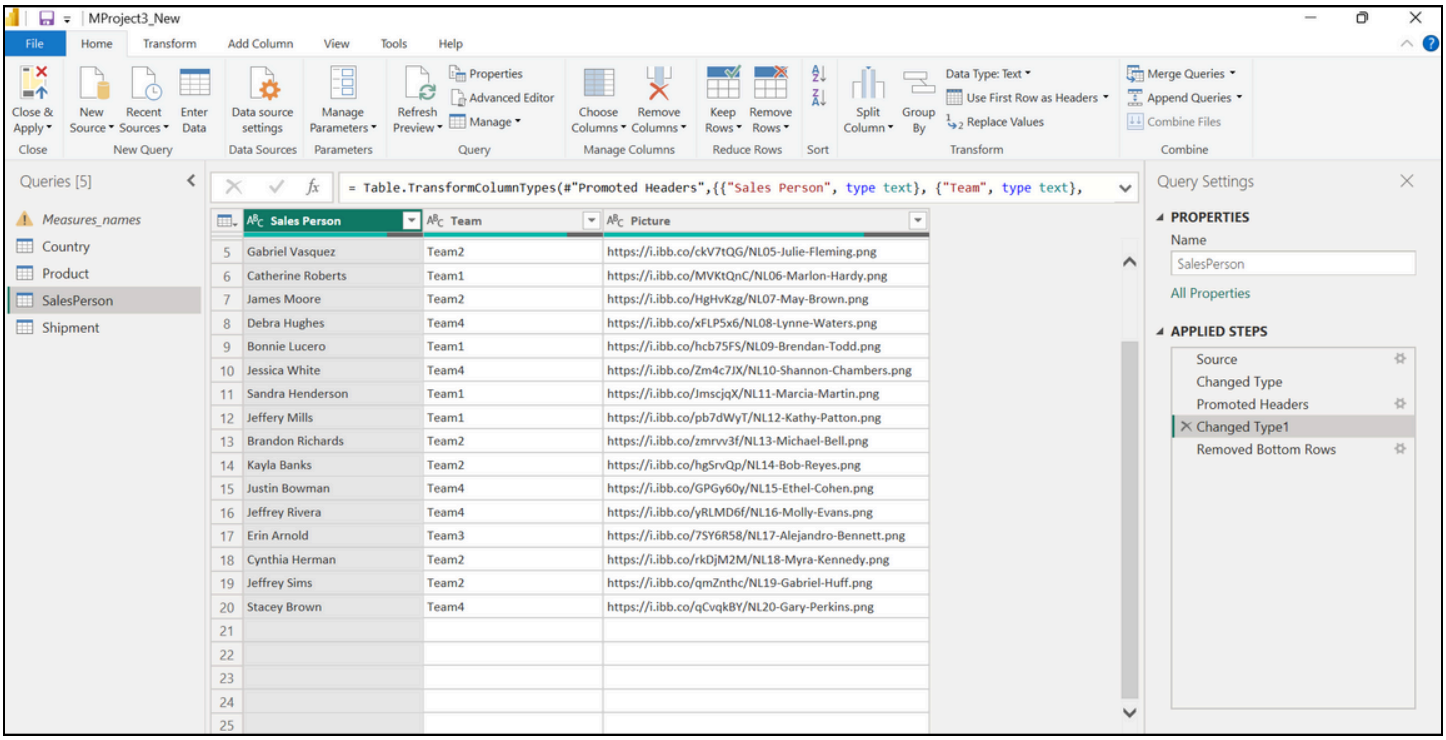
Step 1: Data Cleaning

Cleaning and Future Engineering in Power Query Editor:

Create Delivery time by subtracting Order date from Delivered On date.



SalesPerson Table has empty 5 rows. Deleted those row.



Checking for Null values:

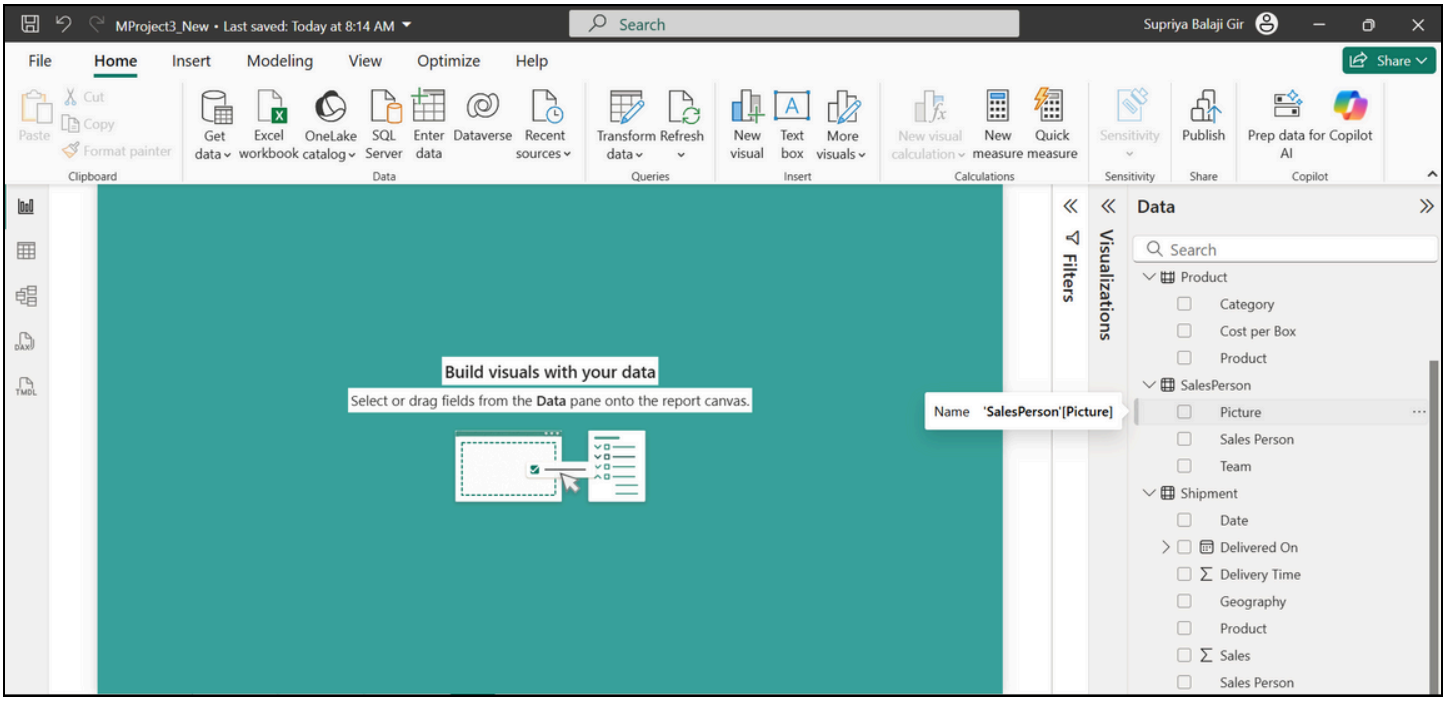
Table Shipments contain Null values in Delivered On Column. But after exploring data it is observed that those null values are for Orders which are not yet delivered they are active or returned so these null values need not to be dropped.

Check for Duplicates:

No Duplicate rows present.

Business Analysis in Power BI

Load the tables in Power BI



DAX Measures in PowerBI:

Total_Shipments = countrows(Shipment)

Active_Shipments = CALCULATE([Total_Shipments], Shipment[Status] ="Active")

Active Shipments % = DIVIDE([Active_Shipments],[Total_Shipments])

Completed_Shipments = CALCULATE([Total_Shipments], Shipment[Status] ="Completed")

Completed Shipments % = DIVIDE([Completed_Shipments],[Total_Shipments])

Returned_Shipments = CALCULATE([Total_Shipments], Shipment[Status] ="Returned")

Returned Shipments % = DIVIDE([Returned_Shipments],[Total_Shipments])

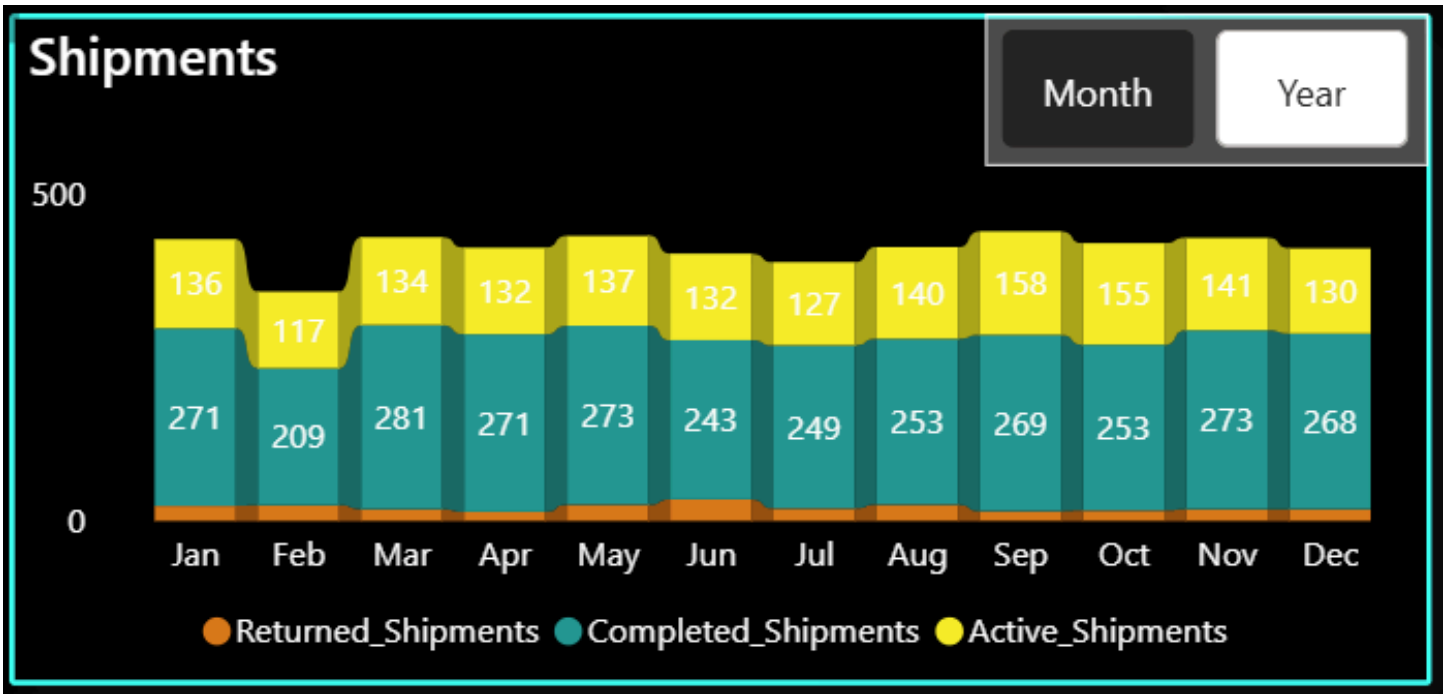
Avg Delivery Time = DIVIDE([Delivery Time],[Completed_Shipments])

Revenue = CALCULATE(sum(Shipment[Sales]),Shipment[Status] = "Completed")

target % = [Revenue] / 1000000

Visual 1: Card Visual for Total, completed, active and returned shipments, Average Delivery time, and revenue.

Visual 2: Shipments by Months:

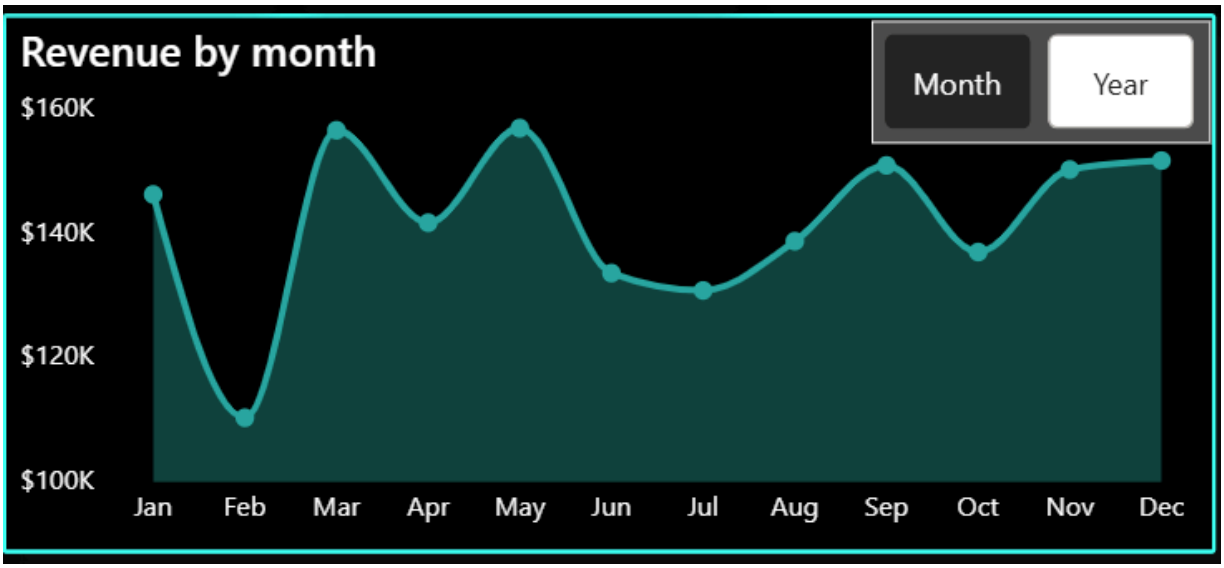


Insight:

Shipment volume remains relatively **consistent throughout the year**, with a balanced mix of **completed** and **active** shipments.

- Minor spikes observed in **March, May, and September**, possibly due to seasonal demand.
- **Returned shipments** are low across all months, showing consistent delivery quality.
- Although we can see **Returned Shipment** spike in Month of **June**.

Visual 3: Revenue by Months:



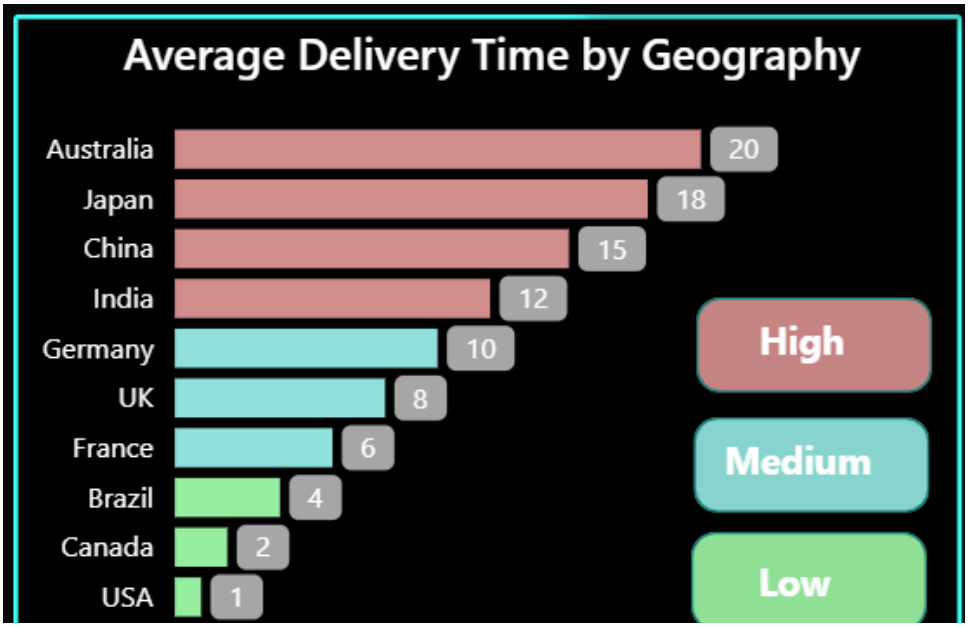
Insight:

Revenue peaked in **March and May**, exceeding **$150K per month**.

A dip around **February and July**, suggesting potential seasonality or regional delays.

End-of-year recovery (Nov–Dec) shows strong Q4 performance.

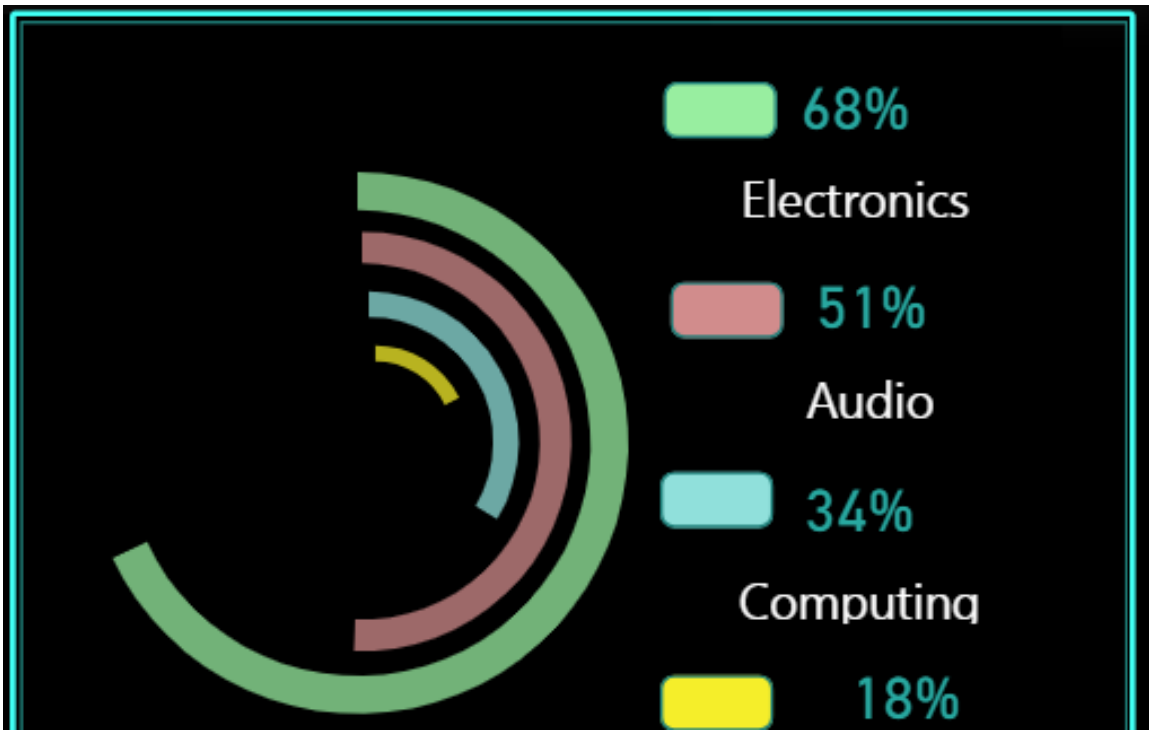
Visual 4: Average Delivery Time by Geography(Country):



Insights:

- **Australia, Japan, and China** have the longest delivery times — could indicate logistical complexity or customs delays.
- **North America and Western Europe (USA, Canada, France)** have the most efficient delivery systems.
- Optimization opportunity: Re-evaluate **Asia-Pacific logistics partners** to reduce delivery lead time by 20–30%.

Visual 5: Revenue by Product Categories:



Electronics – Primary Revenue Driver

- The **Electronics** category contributes approximately **68%** of total revenue, making it the company's most significant income source.
- However, such heavy dependence on one category creates **revenue concentration risk**, meaning that any market fluctuation or supply chain disruption in electronics could significantly impact overall performance.

Audio Equipment – Secondary Growth Segment

- **Audio Equipment** contributes around **51%** revenue share, indicating it's the **second-strongest performer**.
- Further marketing and cross-selling opportunities between **Audio** and **Electronics** products could increase combined revenue.

Computing Devices – Moderate Performer

- With a **34% contribution**, this category shows steady performance but remains below its potential.
- Targeted promotions or bundle offerings could boost shipment volume.

Office Equipment – Underperforming Category

- **Office Equipment** accounts for only **18%** of total revenue, making it the **least contributing segment**.
- The low performance may be due to limited product variety, lower demand, or pricing competition.
- Introducing **discount strategies**, **bulk purchase incentives**, or **corporate partnerships** could help this segment grow.

Visual 6: Sales Persons Performance:

Sales Person	Shipments	Active%	Completed%	Returned%
Jessica White	269	30.86%	66.91%	2.23%
Stacey Brown	264	38.26%	58.71%	3.03%
Kevin King	229	32.75%	63.76%	3.49%
Erin Arnold	268	36.57%	59.70%	3.73%
James Moore	240	30.83%	65.42%	3.75%
Cynthia Herman	230	40.87%	55.22%	3.91%
Debra Hughes	249	35.74%	60.24%	4.02%
Jeffrey Rivera	257	29.57%	65.76%	4.67%
Candace Harris	225	27.56%	67.56%	4.89%

Insights:

Top Performer: *Jessica White* (highest efficiency and lowest return rate) followed by stacey Brown.

Sales Person	Shipments	Active%	Completed%	Returned%
Jessica White	269	30.86%	66.91%	2.23%
Stacey Brown	264	38.26%	58.71%	3.03%

Most Active Salesperson: Bonnie Lucero (highest shipment volume) followed by Kayla Banks.

Sales Person	Shipments	Active%	Completed%	Returned%
Bonnie Lucero	286	30.77%	62.59%	6.64%
Kayla Banks	270	31.11%	63.70%	5.19%

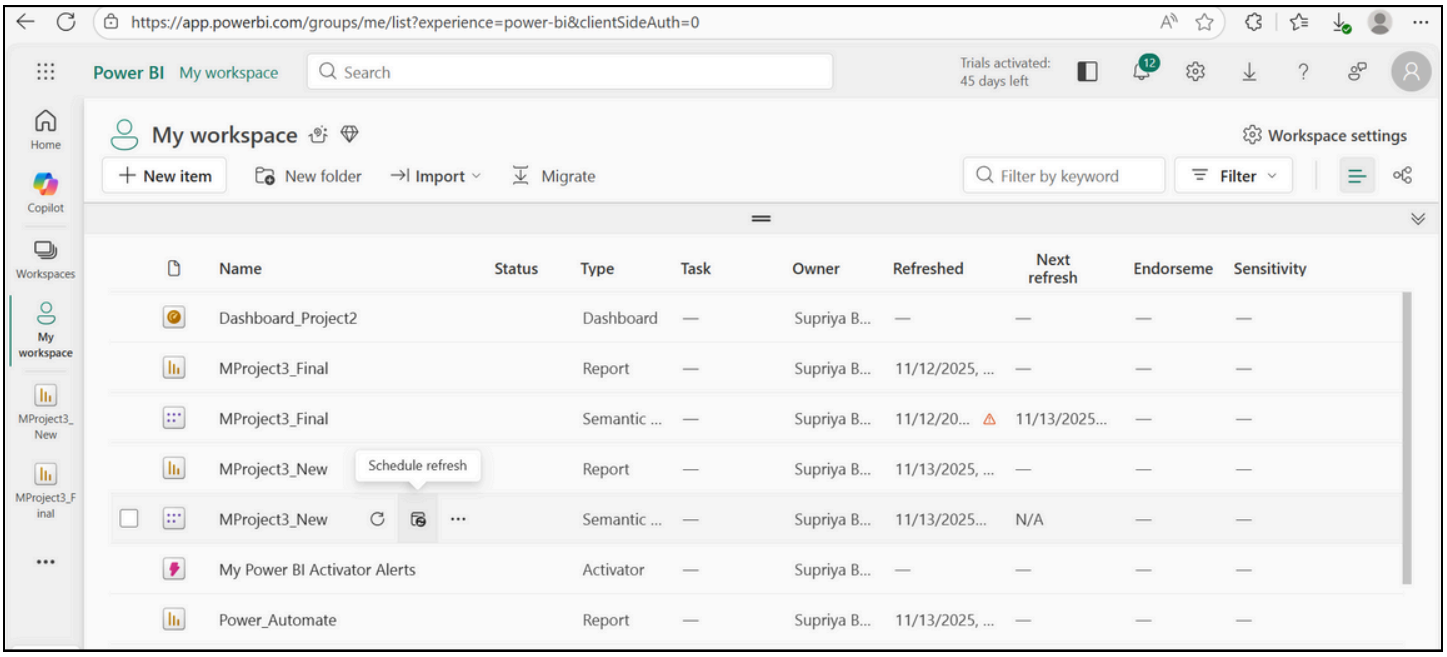
Attention Area: *Laurie Figueroa* - higher return rate, requires process review. Followed by Catherine roberts with high return rate.

Sales Person	Shipments	Active%	Completed%	Returned%
Laurie Figueroa	237	29.54%	63.29%	7.17%
Catherine Roberts	245	37.14%	55.92%	6.94%
Sandra Henderson	254	25.20%	68.11%	6.69%

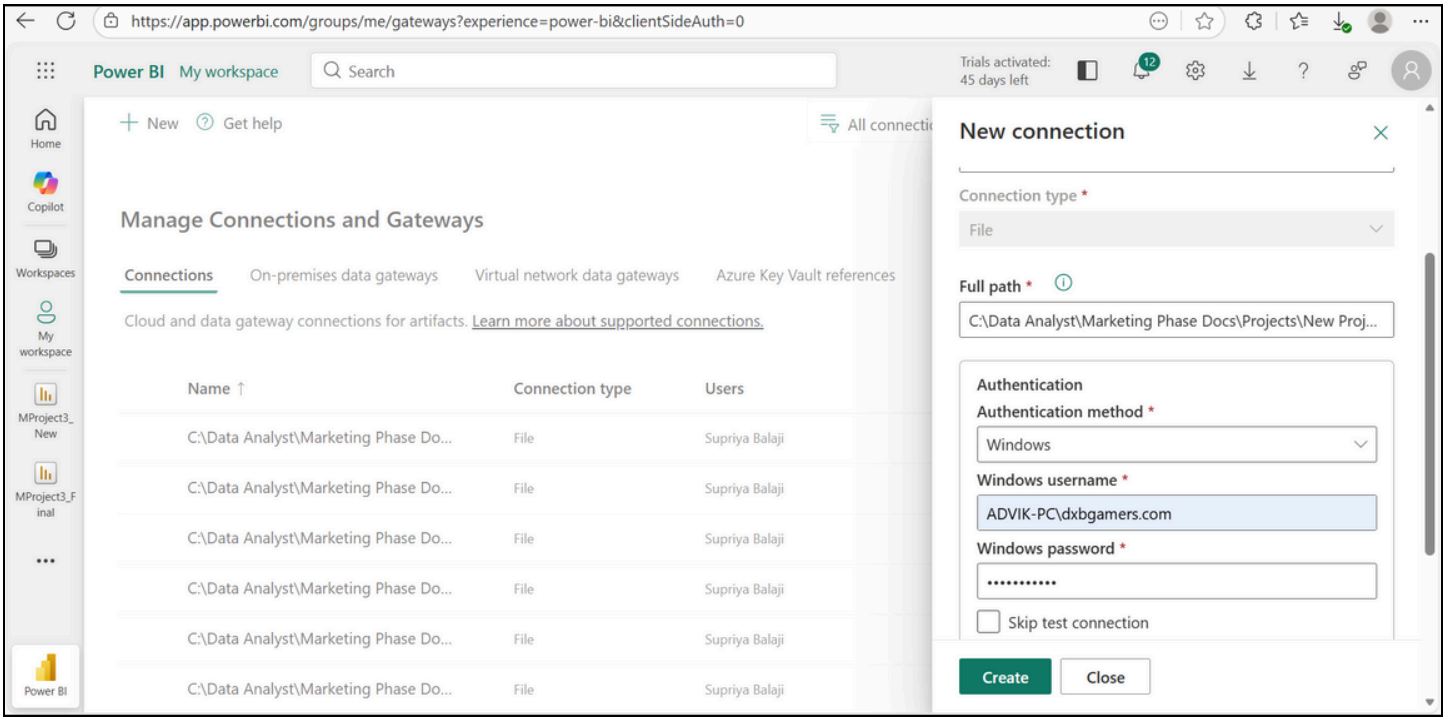
Slicer Visual for Date, Country and Product category:

Automation: Automate data refresh

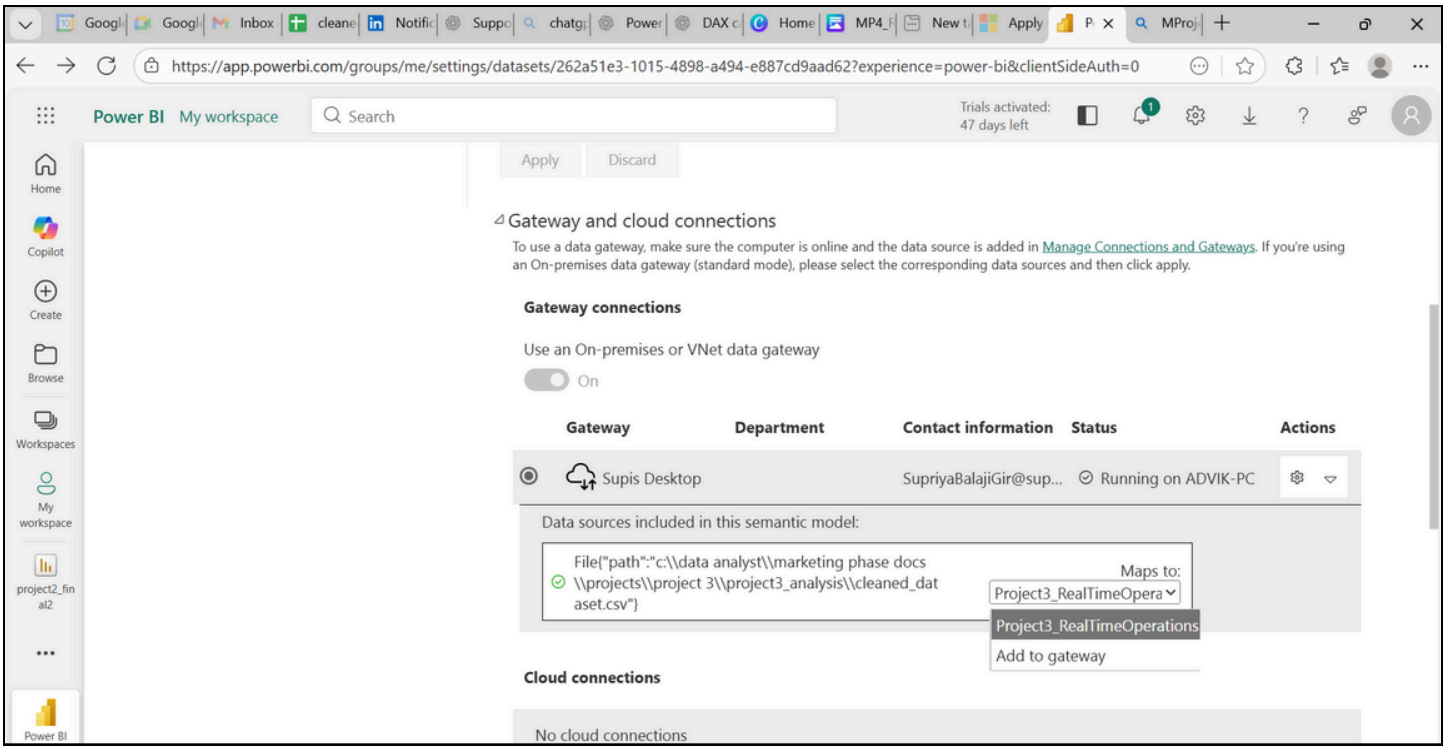
Schedule a refresh for Symantic model of Project in Power BI services:



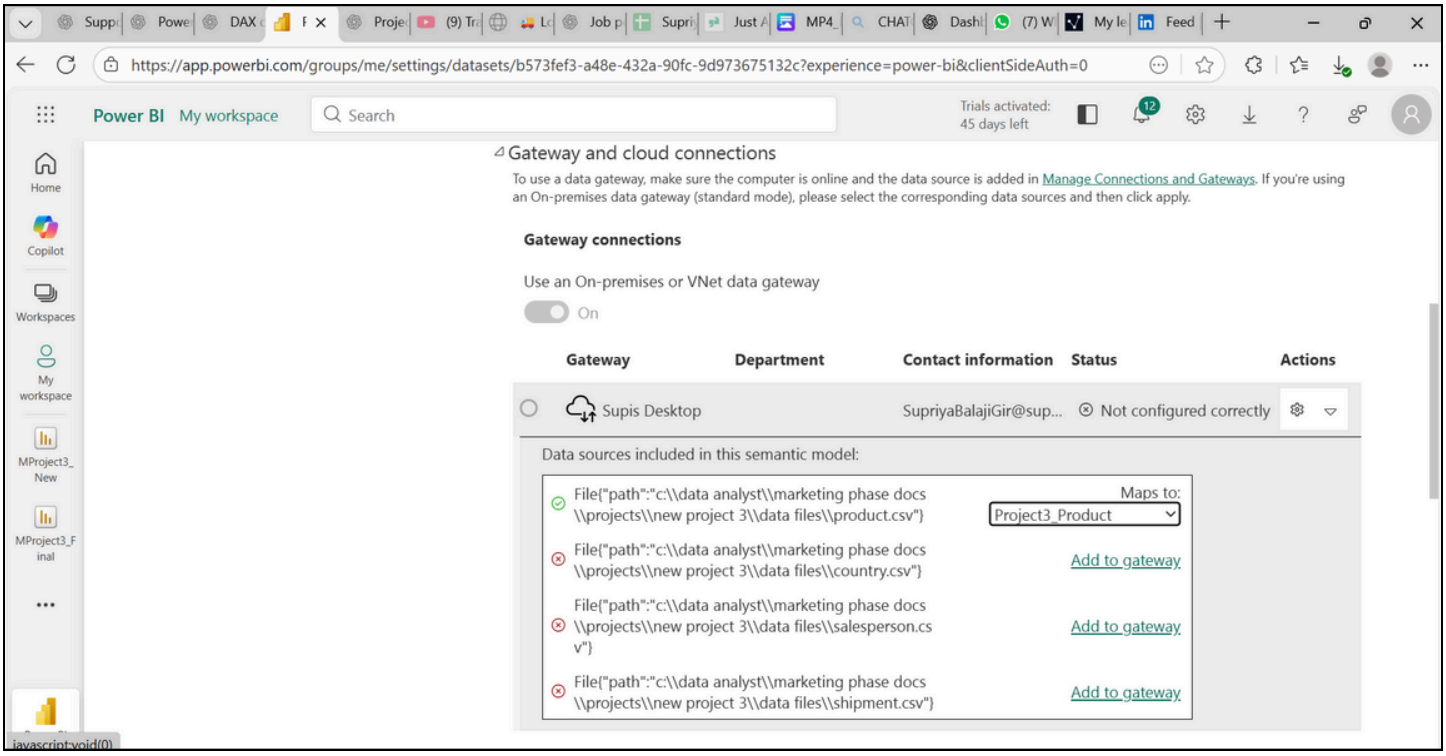
Set Data Gateway as data is on premises(Desktop):



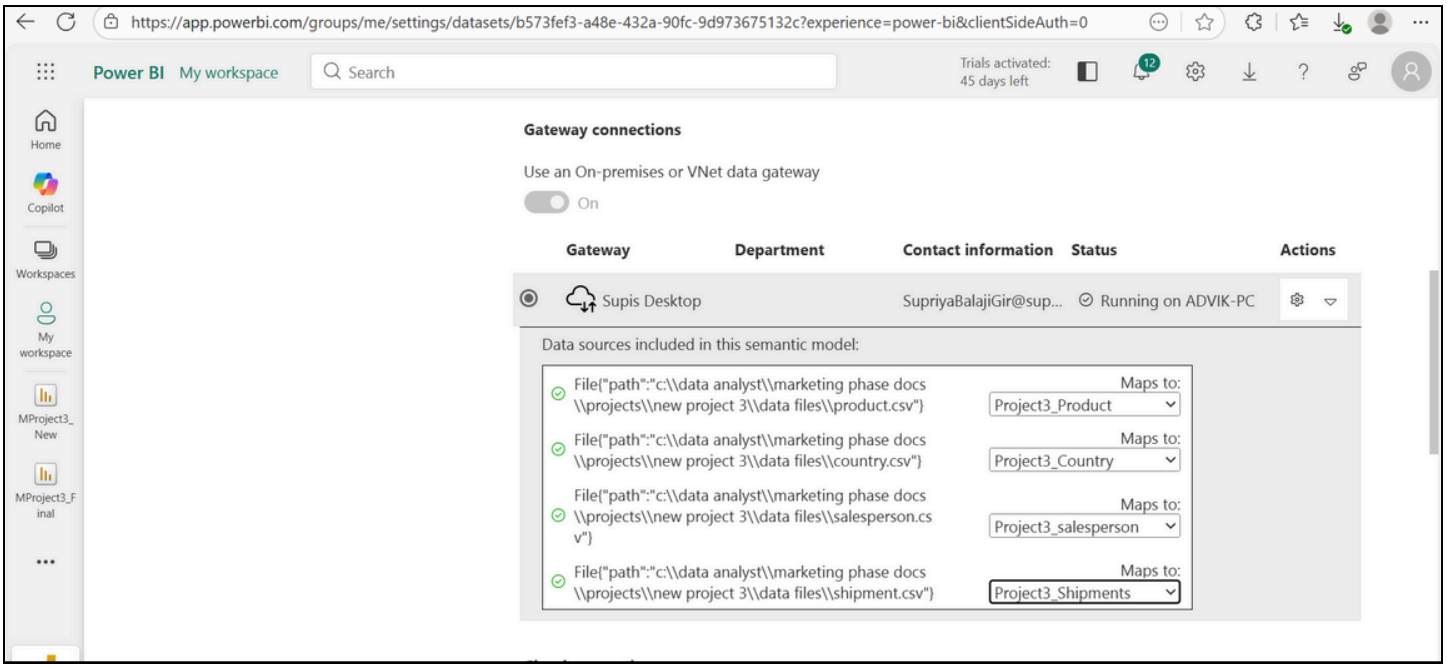
Have to run On premises Data gateway on your premises or your machine.



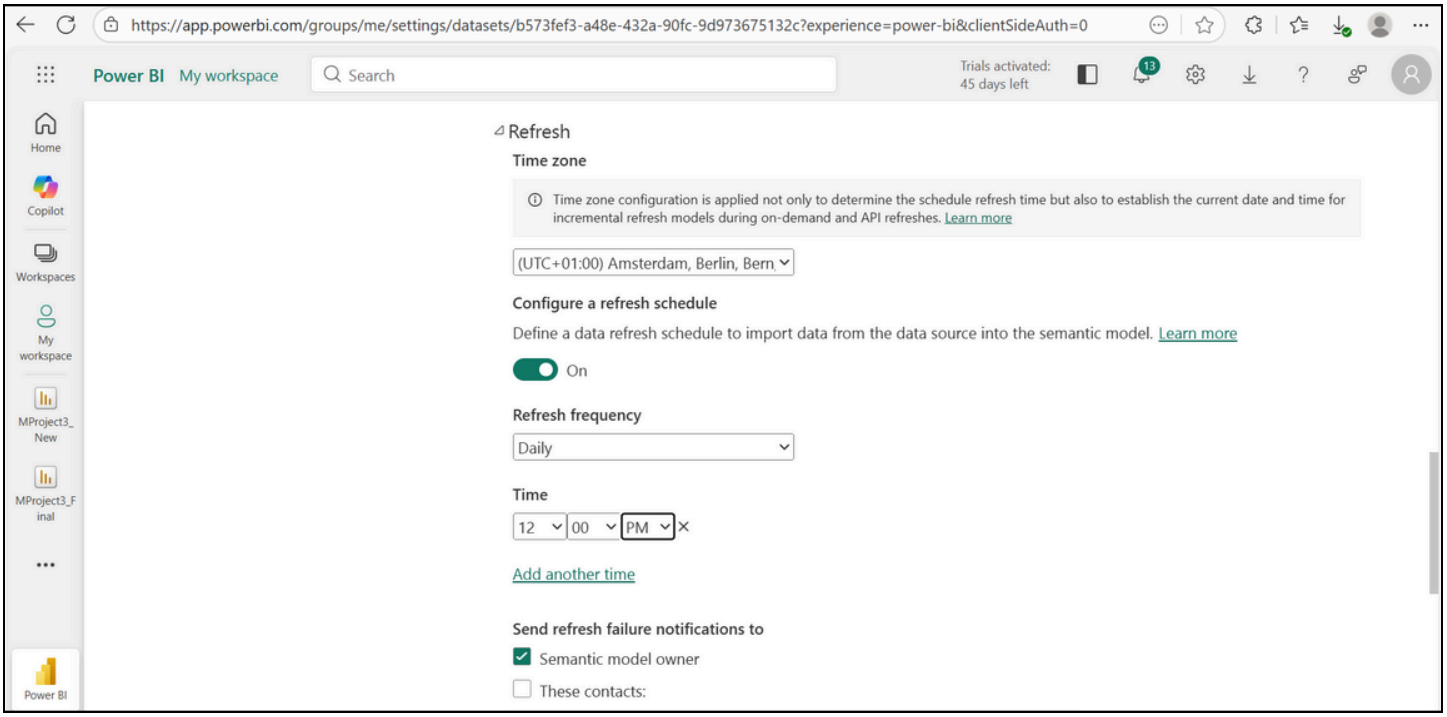
Product Dataset got added as below:

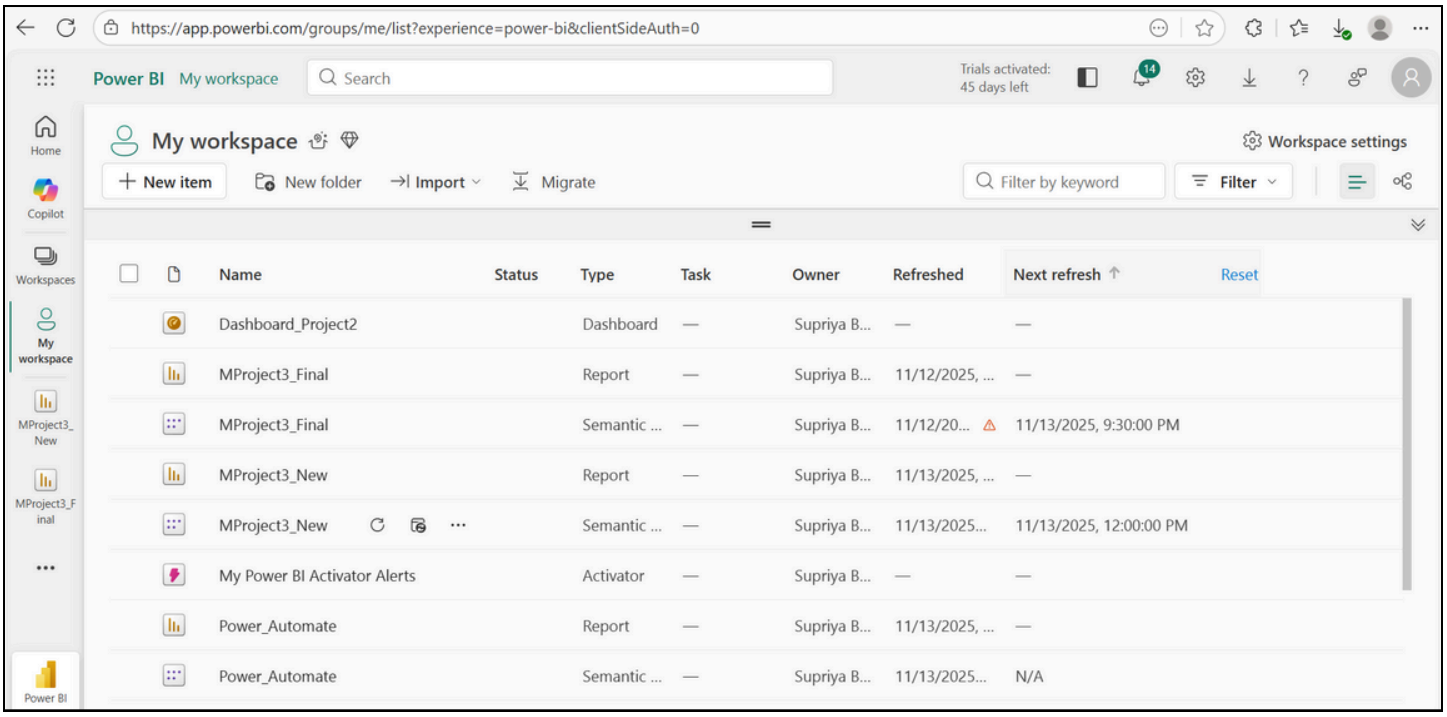


Repeat the same thing for all datasets:

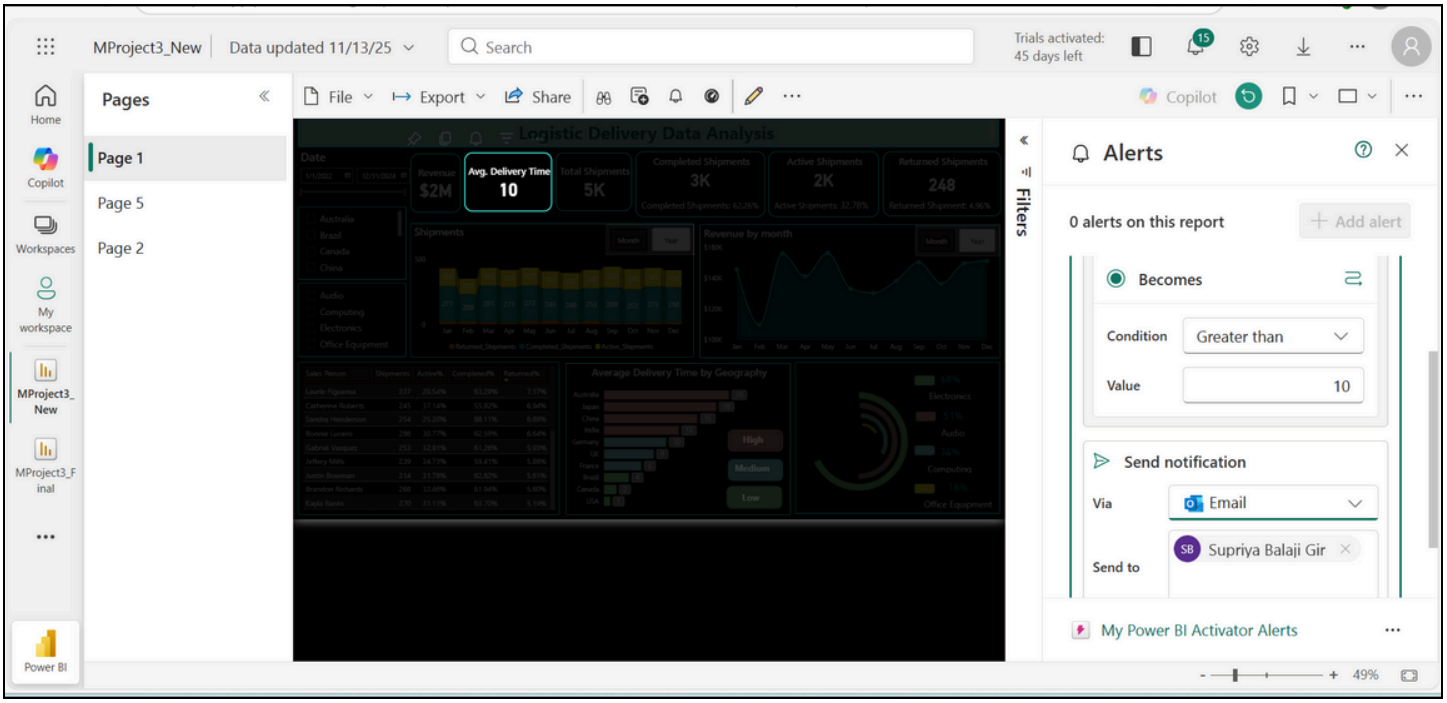


Now Set Refresh Time:



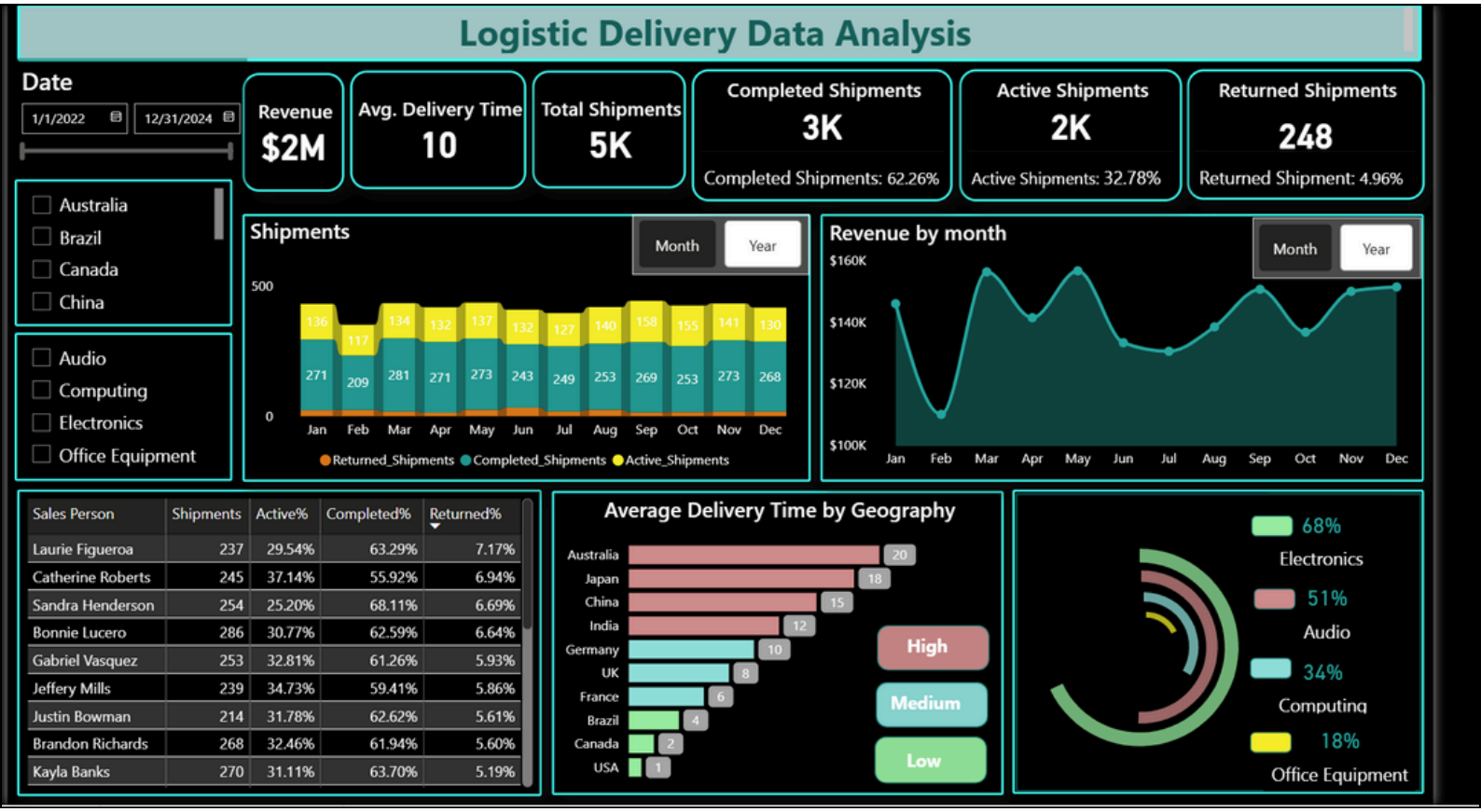


Setting Alerts:



Dashboard

Dashboard Design:



Final Analysis and Insights

1. KPI Summary Cards

The KPI cards display overall business performance metrics.

- **Total Revenue:** $2 Million
- **Total Shipments:** 5,000
- **Completed Shipments:** 3,000 (62%)
- **Active Shipments:** 2,000 (33%)
- **Returned Shipments:** 248 (5%)
- **Average Delivery Time:** 10 Days

📊 **Insight:** The business shows strong operational output with a moderate delivery cycle. However, a 5% return rate suggests room for quality or logistics improvements.

2. Monthly Shipment Trend

Shows completed, active, and returned shipments across months.
📈 **Insight:** Shipment volumes are consistent throughout the year with noticeable peaks in **March, May, and September**, indicating seasonal demand. Returned shipments remain low across months, suggesting stable delivery quality.

3. Revenue by Month (Line Chart)

Visualizes monthly revenue performance.
📉 **Insight:** Revenue peaks during **April–May**, dips slightly mid-year, and recovers towards **November–December**. This trend indicates potential seasonality and end-of-year demand growth.

4. Salesperson Performance (Table or Bar Chart)

Compares shipment handling and revenue among sales representatives.
🏆 **Insight: Jessica White** and **Bonnie Lucero** emerge as top performers, maintaining high completion rates and low return ratios. **Laurie Figueroa** shows strong output but slightly higher returns. Performance consistency among all salespeople indicates effective workforce distribution.

5. Geographic Delivery Time (Map or Bar Chart)

Shows average delivery times across countries.
🌍 **Insight: USA, Canada, and France** have the fastest deliveries (1–6 days), while **Australia, Japan, and China** experience the longest times (15–20 days). This indicates efficiency in North America and Europe, but improvement potential in Asia-Pacific logistics.

6. Product Category Performance (Pie/Bar Chart)

Displays revenue contribution by product category.
💼 **Insight: Electronics** dominate revenue (≈68%), followed by **Audio Equipment (51%)**, **Computing Devices (34%)**, and **Office Equipment (18%)**. Heavy reliance on Electronics presents a risk of overdependence; expanding sales in other categories could improve business stability.

Operational Insights & Recommendations

- **Delivery Optimization:**
  Focus on **reducing the average delivery time from 10 days to 8 days** through better route optimization, warehouse location strategy, and improved courier partnerships in Asia-Pacific.
- **Return Rate Reduction:**
  Investigate causes behind 5% returned shipments — likely linked to product quality or address issues.
- **Revenue Growth Focus:**
  The **April–May** peak period suggests opportunity to capitalize on seasonal demand with promotional campaigns.
- **Employee Training:**
  Recognize and leverage top performers like **Jessica White and Kayla Banks** to mentor others.
- **Geographical Strategy:**
  Improve logistics partnerships or inventory positioning in **Australia, Japan, and China** to reduce high delivery times.
- **Product Mix Adjustment:**
  Strengthen marketing for **Computing and Office Equipment**, as these lag behind Electronics and Audio in revenue contribution.

The company exhibits steady logistics and revenue performance, with a strong focus on electronics and high operational efficiency. The key improvement areas include:

- Shortening delivery times in Asia-Pacific,
- Reducing return rates,
- Leveraging data to optimize shipment forecasting and workforce performance.

With targeted improvements, the organization could achieve a 15–20% increase in efficiency and 10% cost savings in the next fiscal cycle.