

Capstone Project (End to End Case for a real dataset)

Prepared by Eng. Ahmed Hussein, MBA,
PfMP®, PMP®, CMP APMG

Course: From Data to Decisions using Power BI

Lecture 10



Power BI Capstone Project

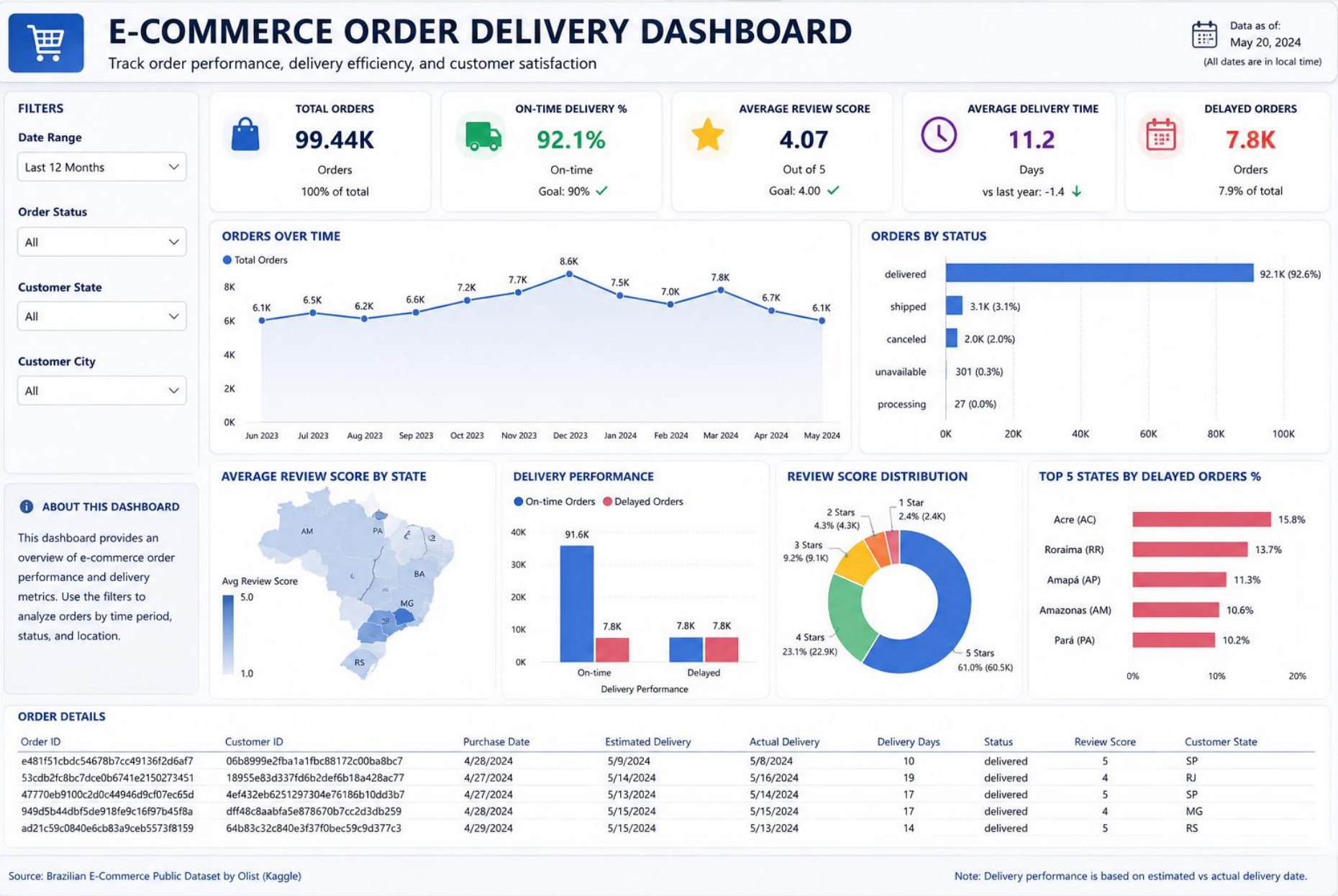
E-Commerce Order Delivery Performance Dashboard

Business Scenario

As a Business Intelligence Analyst for a large e-commerce marketplace (Olist), operations management requires an interactive dashboard to monitor order fulfillment, delivery performance, and customer satisfaction to resolve operational bottlenecks.

Learning Objectives

- ✔ **Import & Model:** Connect and model multiple e-commerce datasets.
- ✔ **Relationships:** Establish star schema data relationships.
- ✔ **DAX Metrics:** Develop core delivery and review score measures.
- ✔ **Interactive UI:** Build & publish report in Power BI Service.



Dataset Overview

BRAZILIAN E-COMMERCE (OLIST)

Kaggle.com → Login → Datasets → Brazilian E-Commerce (Olist)

About the Dataset

Public dataset provided by **Olist** on Kaggle, containing real anonymized transactions from one of Brazil's largest online marketplaces.

Tracks order lifecycles from purchase to delivery, customer geographic locations, and post-delivery review ratings.

Dataset Files Used

File Name	Contents & Key Fields
Orders	Order lifecycle details: order_id, purchase timestamp, estimated & actual delivery dates, and order status.
Customers	Customer geographic metadata: customer_id, city, state, and regional postal attributes.
Reviews	Customer feedback data: review_id, order_id, review score (1–5), and survey dates.

Business Questions We Will Answer

The Power BI dashboard will solve six primary operational questions required by logistics and customer service leaders:



1. On-Time Delivery

Are orders being delivered on time compared to estimated dates?



2. Order Volume Trends

How has total order volume evolved across different time periods?



3. Order Status Breakdown

Which order statuses occur most frequently (delivered, canceled, etc.)?



4. Regional Delays

Which states have the highest percentage of delayed deliveries?



5. Customer Satisfaction Impact

Does delivery speed directly influence customer review scores?



6. Operational Priorities

Which specific regions require immediate operational intervention?

Ⓢ **Strategic Business Value:** Enables operations managers to pinpoint fulfillment bottlenecks, optimize partner logistics, safeguard customer ratings, and drive data-backed improvements.

Executive Dashboard Components

Dashboard Component	Analytical Purpose & Actionable Insight
Date & Location Slicers	Filter orders by reporting period, state, city, and order status.
KPI Cards Header	Total Orders, On-Time %, Avg Review Score, Avg Delivery Time, Delays.
Order Trend Line Chart	Monitor monthly fulfillment volume trajectories and peak delivery seasons.
Order Status Bar Chart	Compare delivered, shipped, canceled, and in-transit order volumes.
State Performance Map	Geographically map delay hot-spots.
Delivery Performance Chart	Benchmark on-time vs. delayed orders across review scores.
Review Score Distribution	Analyze score breakdowns (1 to 5 stars) against delivery speed.
Detailed Orders Table	Granular drill-down interface to audit specific delayed orders.



Expected Outcome

An interactive executive dashboard connecting logistics metrics with customer review scores for holistic decision-making.

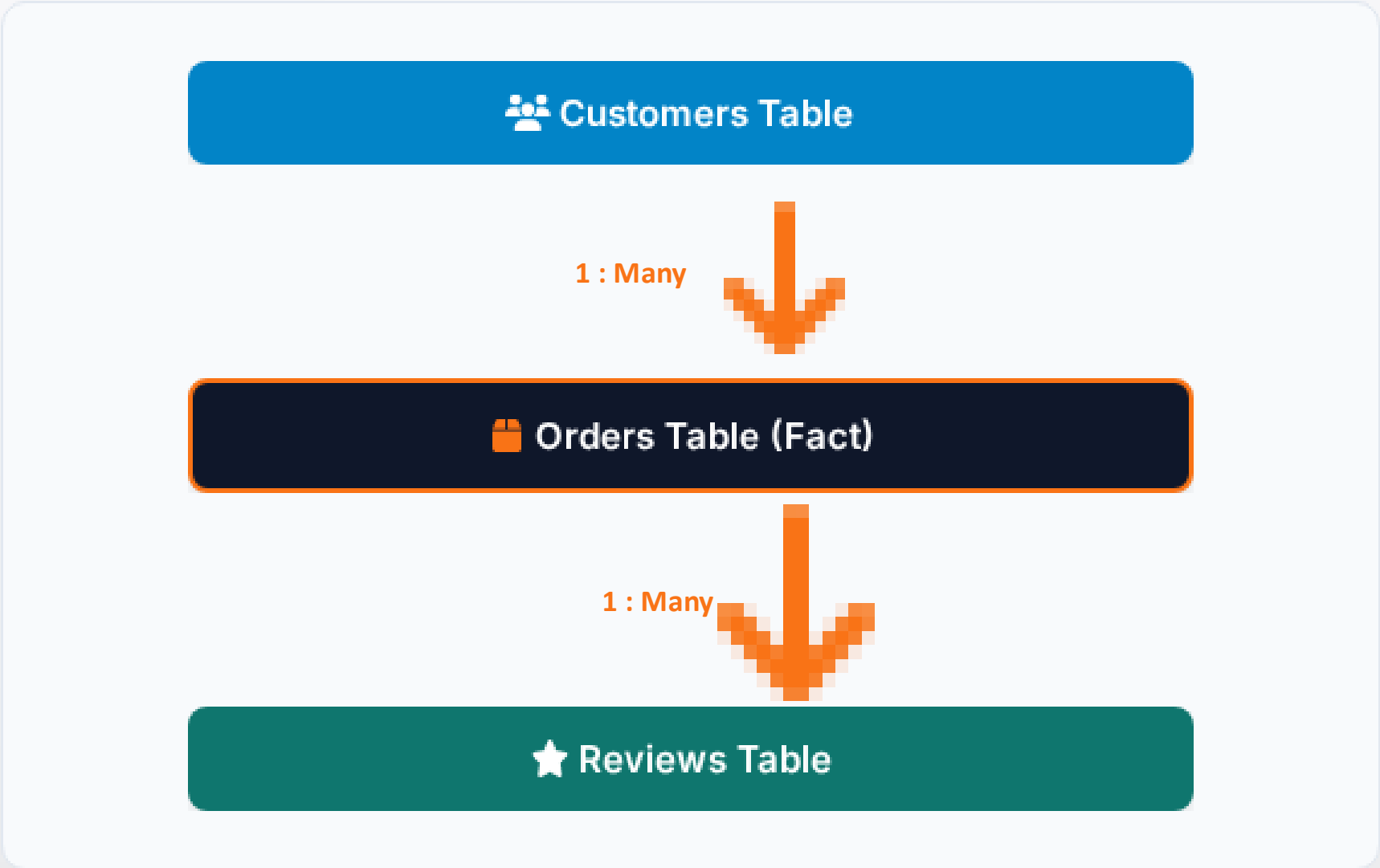
▼ Interactive Drilldown

Slicers and cross-highlighting enable immediate root-cause analysis from national performance down to individual delayed packages.

Data Model & DAX Measures

STAR SCHEMA ARCHITECTURE

Star Schema Model

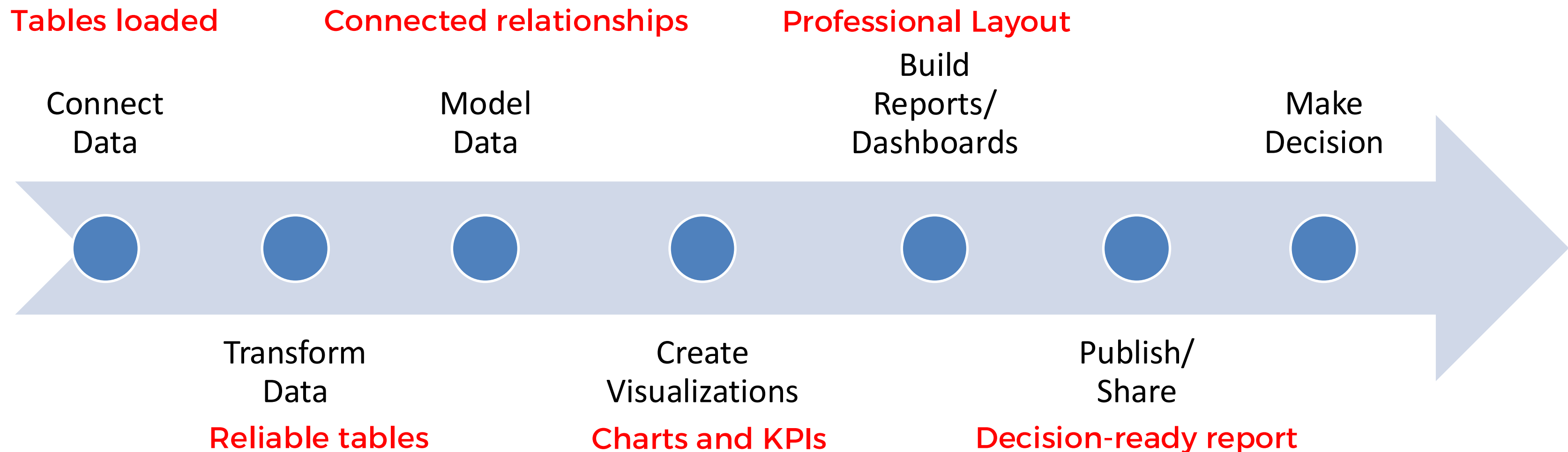


Core DAX Measures

DAX Measure Name	Description / Logic
[Total Orders]	Distinct count of order IDs.
[Avg Review Score]	Average score rating across reviews.
[Avg Delivery Time]	Days from purchase to actual delivery date.
[Delayed Orders]	Orders where actual date > estimated date.
[On-Time Delivery %]	Percentage of orders delivered on/before estimate.
[Avg Orders / Month]	Monthly average volume calculation (Optional).

Lecture
10

Power BI Workflow (The Analytics Journey)



In this hands-on session, we will construct the complete Power BI delivery dashboard through five sequential phases:

Lecture

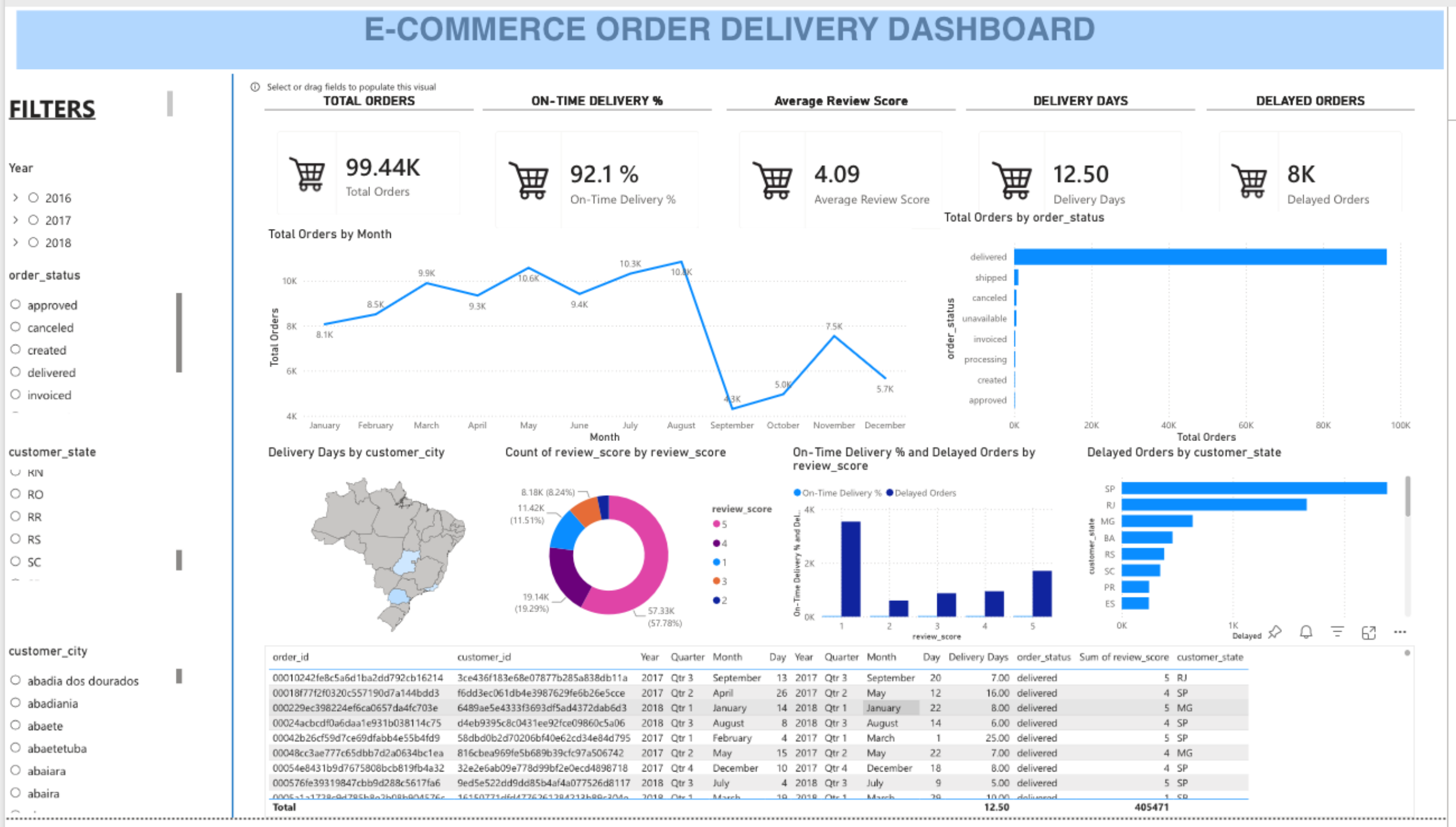
09

Live Demo on Power BI



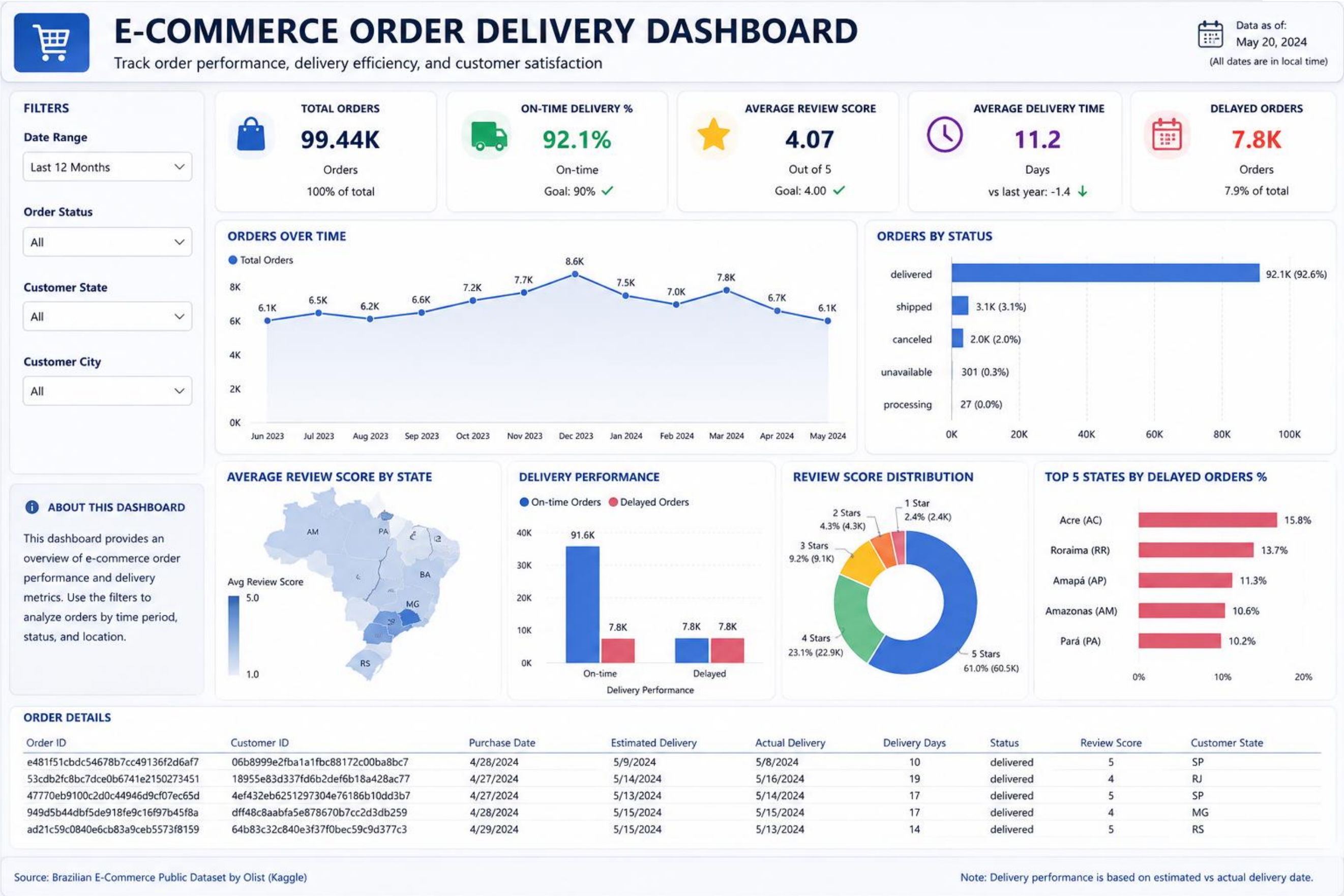
Live Demo Result

We answered all business questions through this one-page report.



- 1. On-Time Delivery
- 2. Order Volume Trends
- 3. Order Status Breakdown
- 4. Regional Delays
- 5. Customer Satisfaction Impact
- 6. Operational Priorities

Suggested Improvements:



<

Microsoft Official Certification Pathways

CAREER ADVANCEMENT

Validate your business intelligence expertise and distinguish your resume with industry-recognized Microsoft credentials:

EXAM PL-300

Power BI Data Analyst Associate

Designed for analysts who transform raw operational data into actionable dashboards and scalable models.

- ✓ **Data Preparation:** Clean and transform data via Power Query.
- ✓ **Data Modeling:** Build Star Schemas and DAX measures.
- ✓ **Visualization:** Design interactive executive dashboards.
- ✓ **Security & Sharing:** Manage RLS and Power BI Service assets.

 **Ideal Next Step for Course Graduates!**

EXAM DP-600

Fabric Analytics Engineer Associate

Tailored for analytics engineers building enterprise-scale data architecture integrating Fabric and Power BI.

- ✓ **Enterprise Architecture:** Design Lakehouses & Warehouses.
- ✓ **Data Engineering:** Dataflows, Pipelines & T-SQL/Notebooks.
- ✓ **Model Optimization:** Optimize large semantic models.
- ✓ **Governance:** Manage OneLake data governance.

 **Advanced Enterprise Career Path**

 **How to Prepare:** Complete Microsoft Learn free learning paths, practice PL-300 assessment exams online, and apply your skills on real capstone projects like the ones built in this course.

Keep Building Momentum

4 Steps to Master Power BI & Grow Your Career

-  **1. Build a Standout Portfolio:** Publish 3-4 diverse dashboards (e.g., E-commerce, Finance, Healthcare) on Power BI Service & GitHub.
-  **2. Master Advanced DAX:** Go beyond basics to master Time-Intelligence, `CALCULATE` context transition, and performance tuning.
-  **3. Engage with the Community:** Join the Microsoft Power BI & Fabric Community, attend local User Groups, and share insights.
-  **4. Get PL-300 Certified:** Set a target exam date, complete Microsoft practice tests, and earn your official badge.

 **Pro Tip:** Practice data storytelling! The best analysts don't just display numbers—they answer business questions and drive actions.





Congratulations & Thank You!

You have successfully completed the Power BI course! You now possess the practical tools to connect data, construct robust data models, formulate DAX calculations, and craft high-impact interactive dashboards.

"Data isn't just numbers—it's the foundation of smarter decision-making. Keep analyzing, keep building, and never stop learning!"

 From Data to Decisions



Thank You