

# Amazon Supply Chain & Sales Analytics Report

## 1. Problem Statement

In a fastmoving ecommerce and supply chain environment, businesses need clear visibility into sales performance, demand patterns, and logistics efficiency to support decisionmaking.

The objective of this project is to analyze sales and supply chain data to:

- Understand overall sales performance
- Identify demand trends across time and regions
- Evaluate logistics and shipping performance
- Compare B2B and B2C order behavior

The final goal is to present these insights in an interactive Power BI dashboard that provides a quick yet comprehensive business overview.

## 2. Dataset Overview

The dataset used for this project is an Amazon sales dataset, containing orderlevel transactional data.

Key attributes in the dataset include:

- Order details: Order ID, Order Date
- Product information: Category, Size
- Sales metrics: Quantity sold, Sales amount
- Logistics data: Courier status, Shipping service level
- Regional data: City, State, Country
- Order type: B2B vs B2C

The dataset represents realworld ecommerce sales data and is suitable for analyzing both sales performance and operational efficiency.

## 3. Data Cleaning & Preparation (Excel)

Data cleaning was performed manually in Microsoft Excel before loading the data into SQL and Power BI.

Cleaning steps included:

- Removing duplicate records
- Standardizing column names for consistency

- Fixing date formats for timebased analysis
- Handling missing or inconsistent values
- Ensuring numeric columns (quantity, amount) were correctly formatted
- Creating helper columns where required for analysis (month/year)
- Verifying data integrity before SQL import

The cleaned dataset was then exported and used for further analysis.

#### **4. Data Analysis Using SQL**

SQL was used to perform structured data analysis and answer businessoriented questions.

SQL concepts and functions used:

- SUM(), COUNT(), AVG() – revenue, order volume, and quantity calculations
- GROUP BY, HAVING, WHERE – aggregation and filtering
- Window functions: SUM() OVER(), SUM() OVER (PARTITION BY ...) – percentage contribution analysis
- CASE WHEN – conditional logic (order status, classifications)
- COALESCE() – handling NULL values
- EXTRACT() – year, month, and weekbased trend analysis
- ORDER BY, LIMIT – ranking and TopN analysis
- Subqueries and CTEs – modular and readable query design

#### **5. Dashboard Design & Results (Power BI)**

A Power BI dashboard was designed to provide an executivelevel overview with the ability to drill down using slicers.

Dashboard components include:

KPI Cards

- Total Orders
- Total Sales (Revenue)
- Total Quantity Sold
- Average Order Value
- Percentage of Orders Shipped

Visual Analytics

- Monthly Sales Trend

- Cumulative Sales Growth using running total
- Categorywise Sales Performance
- Top Cities by Order Volume
- Shipping Service Level vs Orders
- Courier Status Distribution

### Interactivity

- Slicers for:
  - Date (MonthYear)
  - Product Category
  - Shipping Service Level
  - B2B / B2C orders

The dashboard enables users to quickly assess business performance and explore trends without complex navigation.



## 6. Key Business Insights

Based on the analysis and dashboard observations:

- Sales show a consistent month-over-month growth trend
- A limited number of product categories contribute a significant portion of total revenue
- Demand is concentrated in specific cities, indicating key operational regions

- B2C orders dominate overall sales compared to B2B
- Expedited shipping shows notable order volume, highlighting customer preference for faster delivery
- Most orders fall under the “Shipped” courier status, reflecting stable logistics performance

## **7. Business Recommendations**

Based on the insights derived:

- Focus on highperforming categories to maximize revenue growth
- Strengthen logistics operations in highdemand cities to ensure timely delivery
- Promote expedited shipping options where customer adoption is high
- Analyze B2B segment further to identify growth opportunities
- Use monthly and cumulative trends to support sales forecasting and planning