BUSINESS INTELLIGENCE DASHBOARD (2020–2023)

INTRODUCTION

This project is a comprehensive Business Intelligence (BI) solution designed to analyse and visualize key customer and sales data across multiple years (2020, 2021, and 2023). It provides actionable insights to business stakeholders through two purpose-built interactive dashboards: one focused on customer behaviour and the other on sales performance. The dashboards help decision-makers monitor trends, identify opportunities, and improve performance using real-time, data-driven analysis. The project addresses the growing need for clarity in business performance reporting and supports the shift from static reports to dynamic, exploratory dashboards that answer both what happened and why it happened.

OBJECTIVE

The main objective was to design and deliver an intuitive dashboard system that:

- Enables year-over-year performance comparison across customer and sales metrics
- Supports advanced filtering based on product categories and geographic regions
- Provides deep insights into customer acquisition, retention, and profitability
- Highlights sales trends, high-performing products, and areas of revenue loss
- Facilitates strategic decision-making through real-time, visual storytelling

TOOLS AND TECHNOLOGIES USED

- **Data Visualization**: Tableau
- **Data Source**: Sales and customer transactional data from 2020–2023
- **Data Modeling**: Star schema with relationships across date, customer, product, and geography dimensions
- **Data Preparation**: Power Query / Excel for transformation and cleaning
- **Measures and KPIs**: Calculated Fields for dynamic insights

DASHBOARD DESIGN APPROACH

Two core dashboards were developed as part of the solution:

1. CUSTOMER DASHBOARD

- Displays metrics such as total customers, total orders, average sales per customer
- Highlights top 10 customers based on profit
- Visualizes customer order distribution and sales contribution by customer
- Enables filter-based exploration by year, category, sub-category, region, state, and city

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2. SALES DASHBOARD

- Visualizes total sales, profit, and quantity over time
- Offers detailed views of product sub-category performance in both sales and profit
- Identifies top-performing and underperforming products
- Tracks sales and profit trends weekly across multiple years
- Includes YoY comparison to evaluate growth and seasonality

FILTERS AND DIMENSIONS

Both dashboards support dynamic filtering with the following parameters:

- **Year**: 2020, 2021, 2023 (for temporal analysis and trend comparison)
- **Category**: Product categories (e.g., Technology, Furniture, Office Supplies)
- **Sub-Category**: Granular product segmentation (e.g., Phones, Binders, Machines)
- **Region**: Geographical macro view (East, West, Central, South)
- **State and City**: Drill-down capability for location-specific insights

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KEY METRICS AND VISUALIZATIONS

The dashboards feature the following critical performance indicators:

- Total Sales and Profit
- Total Orders and Quantity Sold
- Year-over-Year Change (%)
- Average Sales per Customer
- Profit by Customer
- Sales vs. Profit per Sub-Category
- Sales and Profit Trends (Weekly)
- Top 10 Customers by Profit

Visualizations include bar charts, line graphs, pie charts, tree maps, tables, KPI cards, and trend indicators to enhance readability and interpretation.

RESULTS AND INSIGHTS

Through detailed visual analysis, several business insights were uncovered:

- **Customer Behaviour**: A large number of customers placed only a single order, indicating opportunities for customer engagement and retention strategies.

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- **Product Performance**: High sales and profit observed in Phones and Machines; recurring losses in Binders and Bookcases highlight areas for cost optimization.
- **Regional Trends**: Certain regions and cities consistently contributed to higher sales, offering direction for targeted marketing.
- **Seasonality**: December was consistently the highest-performing month, while January showed performance dips, indicating a seasonal pattern in purchasing behaviour.
- **Profitability**: Despite a slight decline in total sales in 2021, overall profit increased due to improved efficiency and high-margin product sales.

BUSINESS IMPACT

The implementation of this dashboard project resulted in:

- Increased transparency into business operations
- Faster decision-making through automated, real-time reporting
- Improved strategic planning by identifying sales patterns and high-value customers
- Enhanced collaboration among departments by providing a unified view of performance metrics
- Reduced dependency on manual reporting and spreadsheets

CONCLUSION

This Business Intelligence Dashboard project delivers a scalable, data-driven decision support system designed to provide deep insights into customer and sales performance. With robust filtering, year-wise comparisons, and actionable KPIs, it enables stakeholders to make informed decisions with confidence. The dashboard structure and visual design reflect best practices in BI and can serve as a foundation for future analytics expansions such as forecasting, customer segmentation, or product optimization strategies.