Axon Sales Analysis (01-Jan-2003 to 26-Sep-2005)

Introduction-

In this documented report, we present a comprehensive analysis of sales data for Company Axon spanning from January 1, 2003, to September 26, 2005. The analysis is conducted utilizing Power BI for data visualization and SQL for data retrieval and manipulation. The objective is to provide insights into Company Axon's sales performance during this period, identify trends, patterns, and opportunities, and support informed decision-making.

Data Sources-

The primary data sources for this analysis include:

Company Axon's sales database containing transactional data from January 1, 2003, to September 26, 2005.

Methodology-

The following sequence of steps was performed to generate a comprehensive sales dashboard using MySQL & Power BI:

1. The "classicmodels" database was downloaded from the provided link and loaded into MySQL Workbench.
2. It was then loaded into Power BI Desktop using the MySQL database option after downloading the MySQL connector and restarting Power BI.
3. After having the data loaded into Power BI successfully, necessary data transformation operations were performed as follows:

* Null values were replaced without deleting associated data to prevent loss.
* The correct data type was assigned to each column of every table.
* Duplicates were removed to ensure data consistency.
* For the 14 missing values in the "orders[shippedDate]" column, a default date of 01-01-1900 was assigned instead of removing the associated rows to ensure data consistency.

1. Next, data modeling was carried out to establish relationships between tables, and the relationships between the 8 tables were observed to gain a better understanding of the data flow and the cardinalities between the tables of the dataset.
2. After studying and analyzing the data closely, a report with the sales analysis of all the products sold was prepared to assist the company in analyzing their sales category-wise, product-wise based on the time for the years 2003, 2004 & 2005 to get the insights of the Company Axon's sales performance during this period, identify trends, patterns, and opportunities, and support informed decision-making.

Mutiple type of charts and graphs were used in the Power BI Dashboard generated like- Clustered Bar Chart to showcase the Sales by Category & Sub Category, Stacked Area Chart to show the Monthly Sales & Monthly Profit data for all the three years 2003, 2004 & 2005, Donut Chart to show the Sum of sales by the Country, Map showcasing the Sum of Sales and Profit by country.

Slicer visualization tool was used to whhich is present on the top right of the dashboard to show all the 7 ProductLines sold by the company and to get deeper insights into each category. By clicking on any of the 7 ProductLines the entire dashboard changes and showcases the data of the selected ProductLine which makes it even more interactive and useful to obtain the insights from the data.

Use of DAX Functions-

Various DAX Functions were used in this power BI dashboard as mentioned below-

1. CALENDARAUT0- Used to obtain the range of dates which were present in the given dataset which resulted in the range of dates 01-Jan-2003 to 26-Sep-2005.
2. CostpriceOfLot = orderdetails[quantityOrdered]\*orderdetails[buyPrice]- It was used to create a column named CostpriceOfLot in orderdetails table to get the associated cost price of the lot of a product.
3. Profit = orderdetails[SellingPriceofLot]-orderdetails[CostpriceOfLot]- to return the associated profit with a lot.

Data Analysis Findings-

Company Axon recorded total sales of 105,516 and total profit of $3,825,880.25 from January 1, 2003, to September 26, 2005, through 326 orders. They sold 109 distinct products across 7 product lines: Classic Cars, Motorcycles, Planes, Ships, Trucks and Buses, and Vintage Cars. The high volume of sales with a relatively low number of orders indicates that each order placed is significant, likely comprising large quantities.

Insights from the dashboard:

1. The highest sales occurred in November 2003 and 2004, with 10,862 and 10,678 sales respectively.
2. Classic Cars led in sales with 35,582, followed by Vintage Cars (22,933) and Motorcycles (12,778).
3. The top-selling product was the 1992 Ferrari 360 Spider Red, with 1,808 total sales.
4. USA recorded the highest sales at 35,884, followed by Spain (12,429) and France (11,090).
5. Out of all orders, 92% were successfully shipped, 2.5% were cancelled, 1.89% were on hold, 1.57% were resolved, 1.41% were in process, and 0.57% were disputed.

Recommendations-

1. **Leverage Seasonal Trends:** Capitalize on high November sales by launching promotions or new products during this period.
2. **Focus on Top-Selling Categories:** Allocate resources to expand Classic Cars and Vintage Cars categories, and consider further investment in Motorcycles.
3. **Promote High-Demand Products:** Explore similar high-demand products like the 1992 Ferrari 360 Spider Red to drive sales.
4. **Target Key Markets:** Intensify marketing efforts in top sales regions - USA, Spain, and France.
5. **Streamline Order Management:** Optimize order processing and shipping operations to reduce cancellations and hold statuses.
6. **Improve Dispute Resolution:** Implement effective dispute resolution processes and enhance customer support.
7. **Embrace Data-Driven Decision Making:** Continuously monitor sales trends, product performance, and market dynamics for informed decision-making.

Conclusions:

1. **Seasonal Sales Trends:** November consistently emerges as a high-sales month, indicating the potential for targeted promotions or product launches during this period to capitalize on increased consumer spending.
2. **Top-Selling Categories and Products:** Classic Cars and Vintage Cars are the leading categories, with the 1992 Ferrari 360 Spider Red standing out as the top-selling product. This highlights the importance of focusing resources on expanding these categories and promoting high-demand products.
3. **Key Markets for Expansion:** The USA, Spain, and France are the primary sales regions, suggesting opportunities for market expansion or intensified marketing efforts in these regions to further drive sales growth.
4. **Opportunities for Operational Optimization:** Improving order management processes, including order processing and shipping operations, can help reduce cancellations and hold statuses, leading to improved customer satisfaction and retention.
5. **Enhanced Customer Service:** Implementing effective dispute resolution processes and enhancing customer support can mitigate issues and maintain positive customer relationships.
6. **Data-Driven Decision Making:** Utilizing sales data insights for informed decision-making is essential for identifying growth opportunities, optimizing operations, and adapting strategies to market dynamics. Regular monitoring and analysis of sales data should be a cornerstone of the company's strategy moving forward.

Best Regards

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