Data-Driven Decision Making with Power BI: A Comprehensive Analysis of a Clothing Company's Performance

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Project Background

This project involves the analysis of sales data from a clothing company, spanning from January 2018 to December 2021. The company offers more than 1,200 products and collaborates with over 700 retailers. The goal is to understand retailer performance and order patterns, which will help the company optimize its business strategy and maximize profitability. The dataset comprises three primary tables, as shown in the Entity-Relationship Diagram (ERD) below.
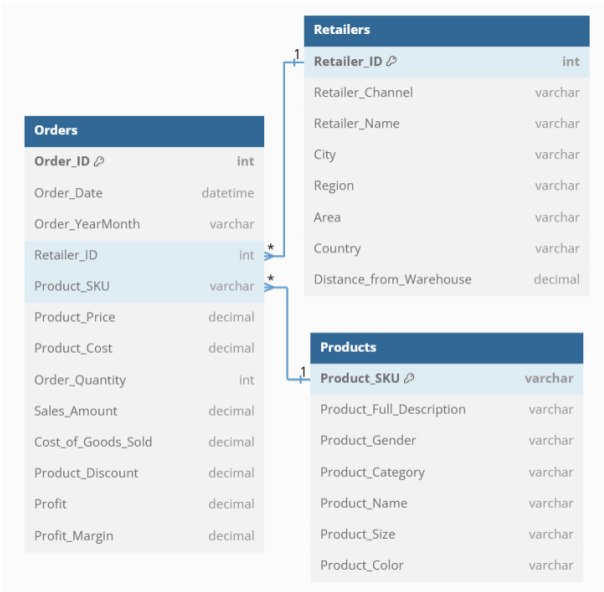

Figure 1: Data Model: Entity-Relationship Diagram (ERD) for the Clothing Company Sales Data

The analysis is structured around four key objectives:

- Retailer Analysis

- Sales Analysis

- Profitability Analysis

- Exploration of Consumer Color Preferences by Gender and Category
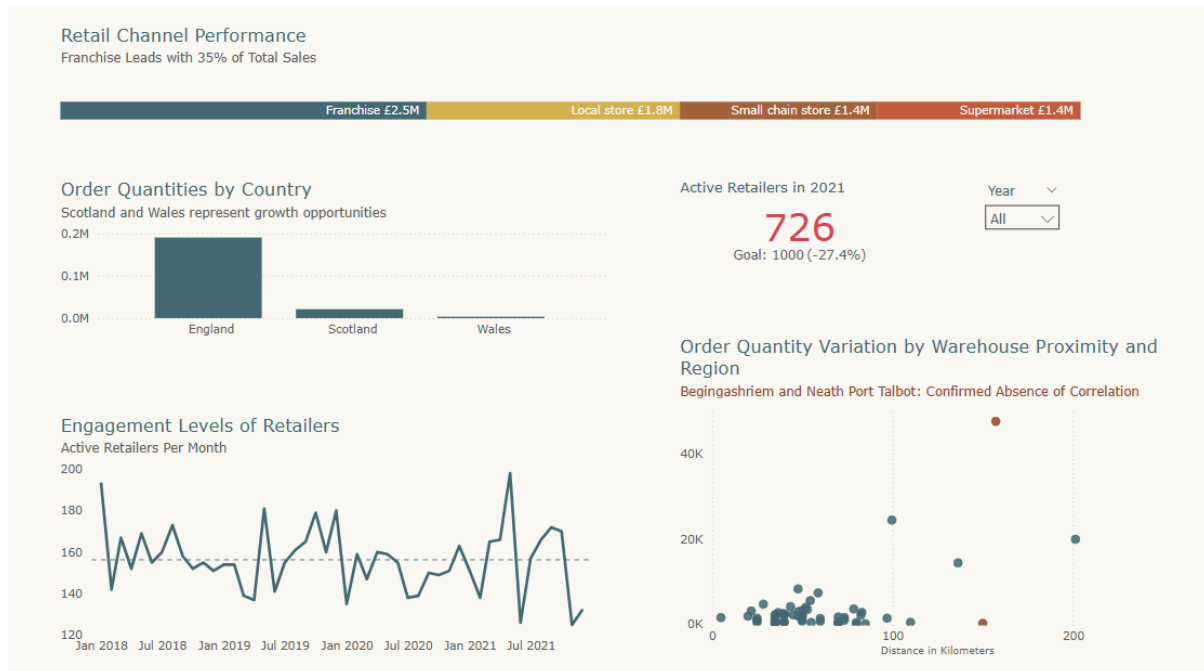
Retailer Analysis

Figure 2: Retailer Analysis Dashboard

Retail Channel Performance

- **Top Performer**: Franchise is the top performer, contributing 35% of total sales. This reflects its stable, high-volume, and standardized order pattern.

Recommendation

- Focus on long-term contracts with franchise partners to strengthen this relationship.

- Offer exclusive deals for large-volume orders to increase their loyalty, driving even greater sales.

Order Quantity by Country

- **England's Dominance**: England's dominance is expected and aligns with the market structure.

Recommendation

- Explore potential in Scotland and Wales by implementing region-specific strategies through targeted campaigns and offers.

Engagement level of retailers

- **2021 Performance**: The average number of active retailers was 27% below the target of 1,000.

- **Active Retailers**: On average, only 160 retailers placed orders per month, representing approximately 20% of the total retailer base.

- **Seasonal Trends**: No clear seasonal trends were observed in retailer engagement.

Recommendation

- Identify inactive retailers and re-engage them through targeted loyalty programs and discounts.

Order Quantity Variation by Warehouse Proximity and Region

- **Possible Explanation**: Retailers located farther from warehouses might place fewer but larger orders, resulting in lower overall engagement.

- **Observation**: The plot does not show a clear correlation between warehouse proximity and order frequency.

- **Contradictory Case**:

  - In **Neath Port Talbot**, retailers are on average 150 km away from the warehouse and place 276 orders.
  - In **Begingashriem**, retailers are at a similar distance of 157 km but place 47,000 orders, the highest recorded.

Recommendation

- Implement region-specific strategies:

  - Encourage smaller retailers to place more frequent orders in regions with low total orders through targeted promotions or incentives.
  - Focus on optimizing inventory management to efficiently handle large orders in regions with high order volumes.
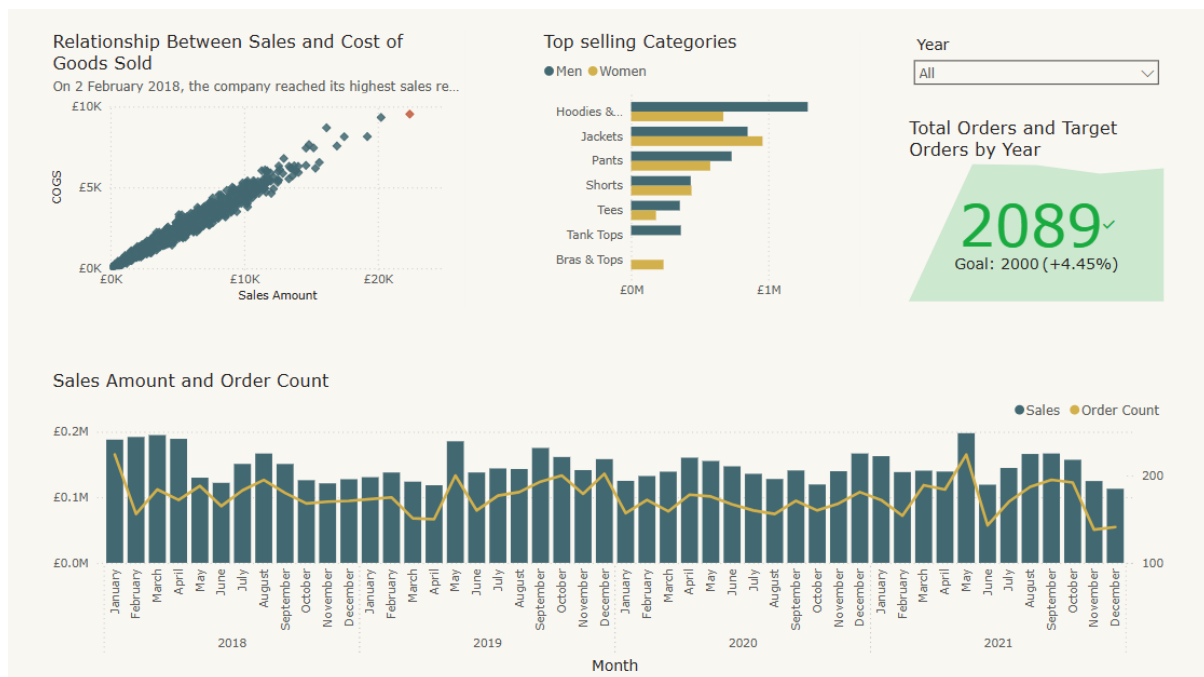
Sales Analysis

Figure 3: Retailer Analysis Dashboard

Relationship Between Sales and Cost of Goods Sold

- **Sales Growth and COGS**: As sales grow, the cost of goods sold (COGS) increases due to higher costs incurred for producing or sourcing more goods to meet the growing demand.

- **Highest Sales Achievement**: On February 2, 2018, the company achieved its highest sales ever.

Recommendation

- Improve the efficiency of production and procurement processes through optimized supply chain management to manage the correlation between sales and COGS.

- Analyze the factors behind the sales peak in February 2018, such as special promotions or product demand, to identify strategies to replicate or surpass this performance in the future.

Top Selling Categories

- **Top Performers**: Hoodies and sweatshirts lead in sales, particularly among men, followed by jackets.

- **Low Sales Categories**: Bras & tops and tank tops, are gender-specific, have the lowest sales.

Recommendation

- Increase stock levels for hoodies, sweatshirts, and jackets and continue targeting male consumers with tailored marketing efforts.

- **O**ffer targeted promotions or discounts for bras & tops and tank tops to enhance their sales.

Sales and Total Orders

- The total orders for each year have exceeded the target of 2,000 by 4%.

- **General Trend**: The sales amount generally follows the same trend as total orders.

- **Irregularity in 2018**: There were periods, such as the start of 2018, when total monthly orders decreased while the sales amount remained relatively constant. This can be attributed to the promotion offering free delivery for larger orders, which encouraged customers to place larger orders.

Recommendation

- Increase the target for future years to align with the observed growth.

- Use targeted promotions which encourage larger orders to help maintain sales even if order frequency decreases.
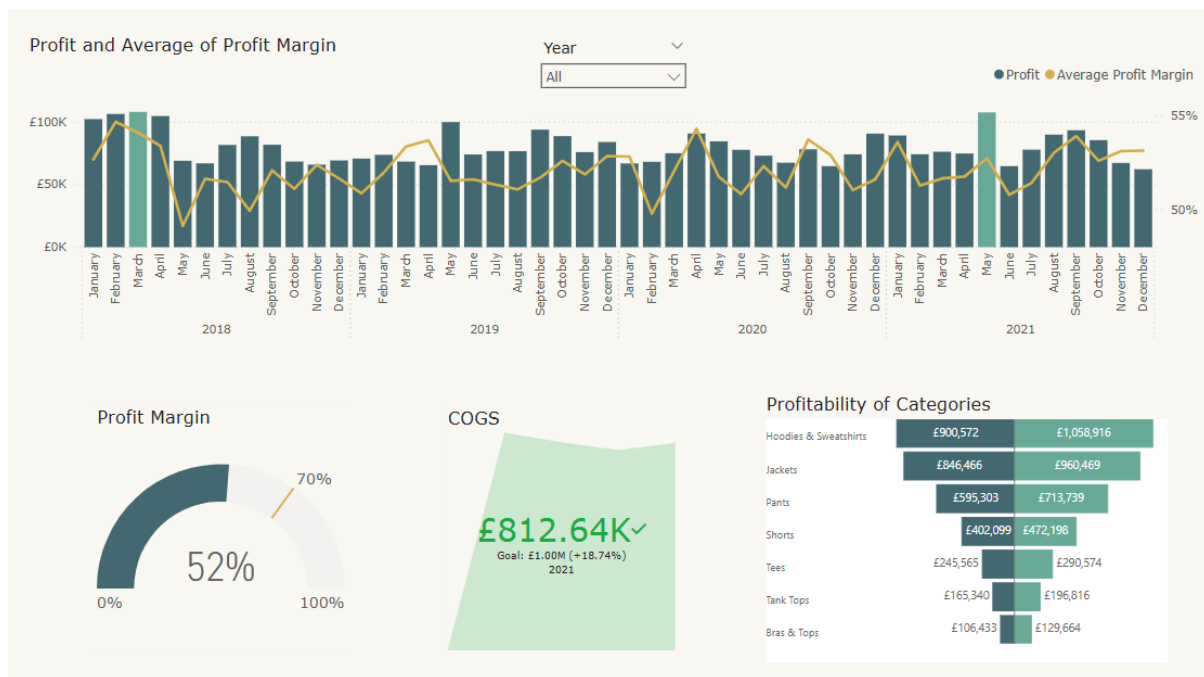
Profitability Analysis

Figure 4: Profitability Analysis Dashboard

- **Gross Profit and Growth**: The company achieved a record gross profit of £107K in March 2018, with near-record levels in May 2021, reflecting consistent growth.

- **Profit Margin and Efficiency**: The average profit margin stands at 52%, which is below the target of 70%, indicating the need for better cost efficiency and pricing strategies.

- **Cost Control**: The cost of goods sold remained below £1M in 2021, indicating effective cost control measures.

- **Product Category Shifts**: Jackets led in revenue and costs in 2018, but since 2019, hoodies and sweatshirts have become the revenue-generating categories.

Recommendation

- Consider exploring higher-margin products or adjusting the pricing of current products to meet the 70% target.

- Look into negotiating better supplier contracts or optimizing inventory management to reduce waste and improve profitability.

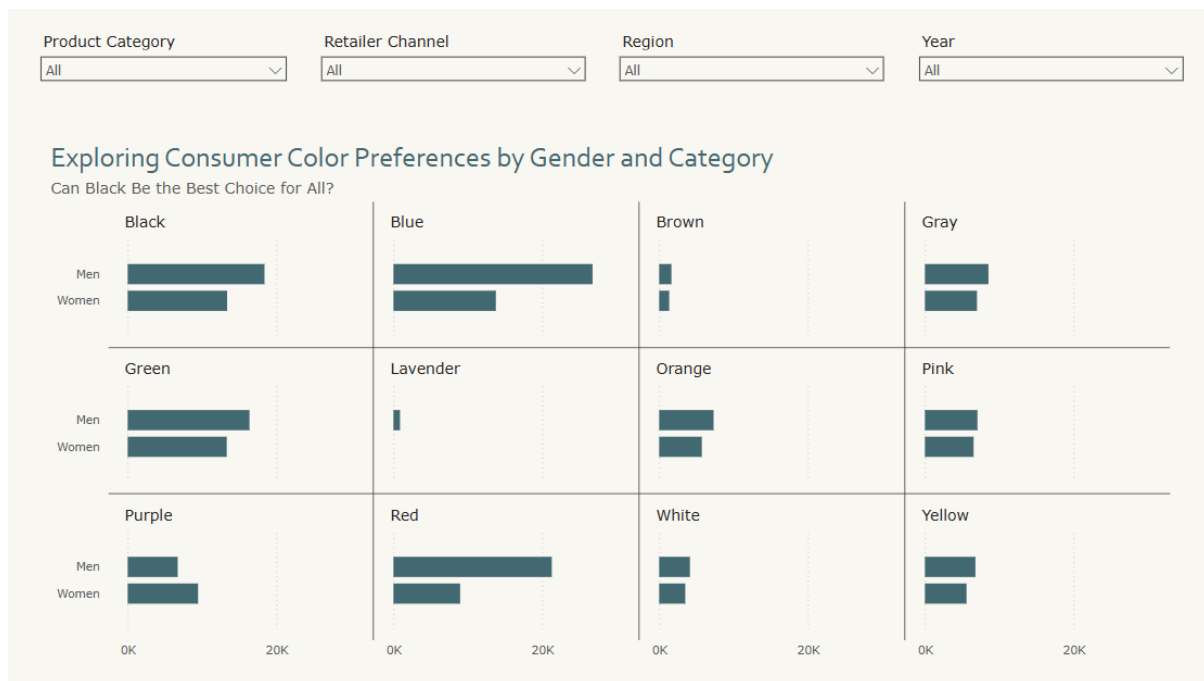# Exploring Consumer Color Preferences by Gender and Category

Figure 5: Consumer Color Preferences by Gender and Category Dashboard

- **Objective**: To explore color trends over the years and develop strategies based on gender and category, comparing results across different regions and channel types.

- **Importance**:

    - Helps decide which items to prioritize for production and stocking based on trending colors.

    - Enables adjustments in stock to align with color preferences for specific genders.

    - Provides insights for marketing strategies and promotional campaigns tailored to consumer color preferences.

    - Assists in future production planning by identifying trending colors and guiding designs for upcoming seasons.

- **Example of Findings**:

    - In the franchise channel, red is the most popular color for men's hoodies and sweaters. However, in Edinburgh, women's hoodies and sweaters are predominantly sold in blue and green, reflecting regional variations in color preferences.

- **Recommendation**: Tailor stock levels and promotional efforts to local color preferences.