DataSpark: Illuminating Insights for Global Electronics

Project Done

By

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This project, titled "DataSpark: Illuminating Insights for Global Electronics," is a data analytics initiative for a company called Global Electronics, a leading retailer of consumer electronics. The main goal is to conduct a comprehensive Exploratory Data Analysis (EDA) to uncover valuable insights from the company's data and provide actionable recommendations to enhance customer satisfaction, optimize operations, and drive overall business growth.

Customer Demographics:

1.The customer base includes both males and females across different age groups.
2.Customers are located in various countries and cities worldwide.

Global Electronics Sales

Customer Analysis

23.09M
Order Value

Count of gender
15.266K

Country

Australia	Canada	France
Germany	Italy	Netherlands
United Kingdom	United States	

Gender

Female	Male

Purchase Patterns

Count of customerkey, Order Value and Frequency of Purchases

● Count of customerkey ● Order Value ● Frequency of Purchases

Demographic Distribution

Location	Gender	Age
▲		
Aalen Wasseralfingen,Baden-Württemberg,Germany,Europe	Male	24
Aalten,Gelderland,Netherlands,Europe	Male	26
Abbeville,Picardie,France,Europe	Female	27
Abbeville,South Carolina,United States,North America	Female	66
ABBOTS BROMLEY,Cannock Chase,United Kingdom,Europe	Female	26
ABBOTS RIPTON,Peterborough,United Kingdom,Europe	Male	62
Total	**Female**	**22**

Customer Segmentation

Gender	Order Value
⊞ **Female**	**1,13,65,636.60**
⊟ **Male**	**1,17,27,154.61**
⊟ **22**	**14,256.48**
Ashwaubenon,Wisconsin,United States,North America	1,761.94
Burlington,Ontario,Canada,North America	4,290.49
CHAPEL,Fife,United Kingdom,Europe	621.51
Total	**2,30,92,791.21**

Chart axis: Count of customerkey, Order Value and Frequency of Purchases

350K, 300K, 250K, 200K, 150K, 100K, 50K, 0K

23093K

15K 26K
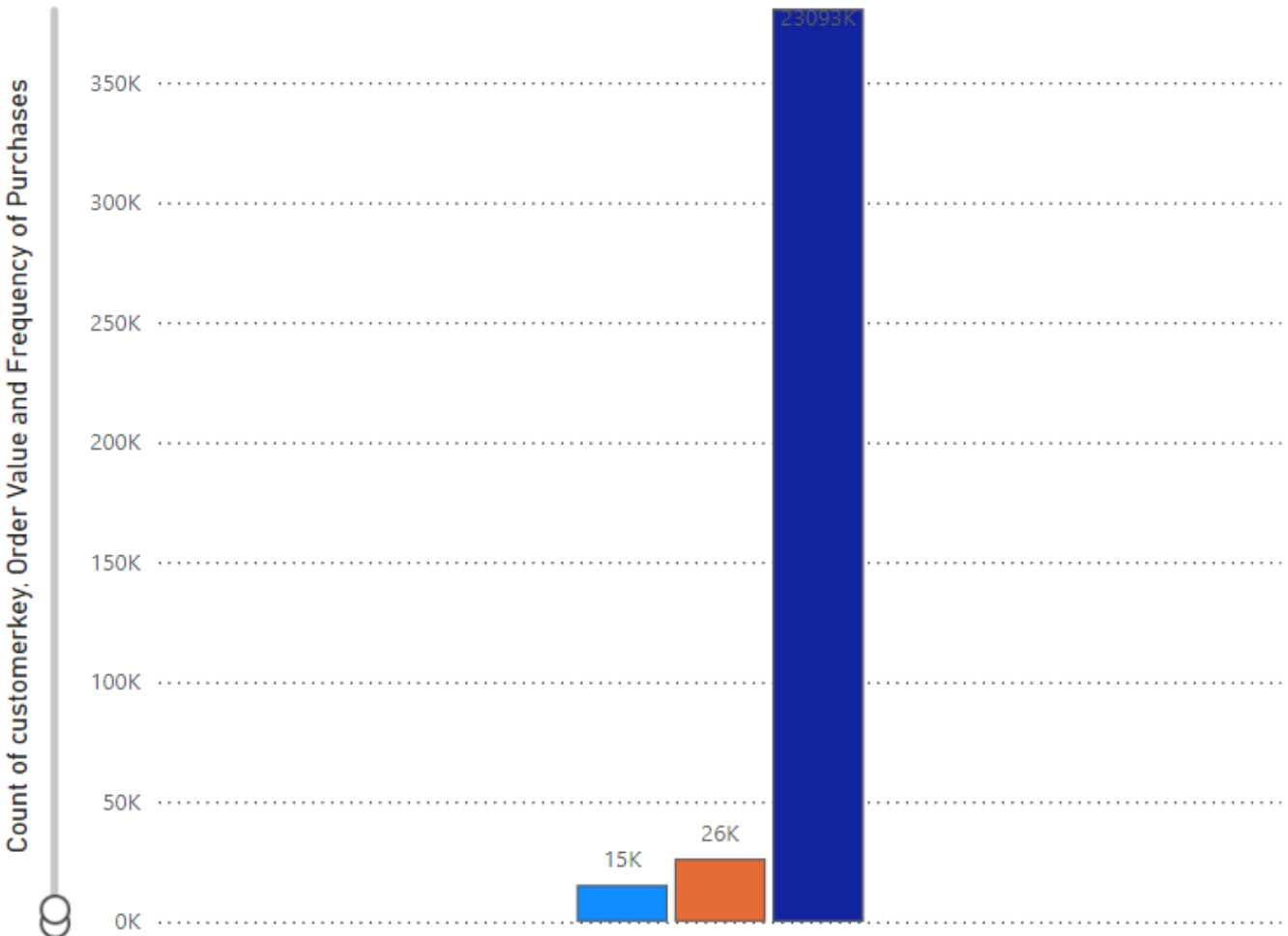
Customer Analysis:

1. There's demographic data showing customer distribution by gender, age, and location.
2. Purchase patterns are displayed, including order values and frequency.
3. Customer segmentation is shown by gender and order value.

Sales Performance:

1. Total sales show fluctuations over time, with peaks and troughs across different months and years.
2. The total revenue appears to be relatively stable around 0.9 million across different periods.
3. There's a total of 198,000 units sold and 26,000 total orders.

Sales Analysis

Sales by Product

product_name	Total Sales	Total Revenue:
⊞ A. Datum Advanced Digital Camera M300 Azure	31	5,843.50
⊞ A. Datum Advanced Digital Camera M300 Black	34	6,409.00
⊞ A. Datum Advanced Digital Camera M300 Green	41	7,728.50
⊞ A. Datum Advanced Digital Camera M300 Grey	49	9,236.50
⊞ A. Datum Advanced Digital Camera M300 Orange	46	8,671.00
⊞ A. Datum Advanced Digital Camera M300 Pink	33	6,220.50
⊞ A. Datum Advanced Digital Camera M300 Silver	35	6,597.50
⊞ A. Datum All in One Digital Camera M200 Azure	72	13,536.00
⊞ A. Datum All in One Digital Camera M200 Black	29	5,452.00
⊞ A. Datum All in One Digital Camera M200 Green	63	11,844.00
⊞ A. Datum All in One Digital Camera M200 Grey	51	9,588.00
⊞ A. Datum All in One Digital Camera M200 Orange	58	10,904.00
⊞ A. Datum All in One Digital Camera M200 Pink	49	9,212.00
⊞ A. Datum All in One Digital Camera M200 Silver	64	12,032.00
⊞ A. Datum Bridge Digital Camera M300 Azure	36	6,728.40
⊞ A. Datum Bridge Digital Camera M300 Black	34	6,354.60
⊞ A. Datum Bridge Digital Camera M300 Green	72	13,456.80
⊞ A. Datum Bridge Digital Camera M300 Grey	57	10,653.30
⊞ A. Datum Bridge Digital Camera M300 Orange	81	15,138.90
⊞ A. Datum Bridge Digital Camera M300 Pink	36	6,728.40
⊞ A. Datum Bridge Digital Camera M300 Silver	31	5,793.90
Total	**197757**	**5,57,55,479.59**

Overall Sales Performance

Total Sales and Total Revenue: by Year Month

● Total Sales ● Total Revenue:

198K
Total Quantity

Total Orders
26K

Year

2016	2017	2018
2019	2020	2021
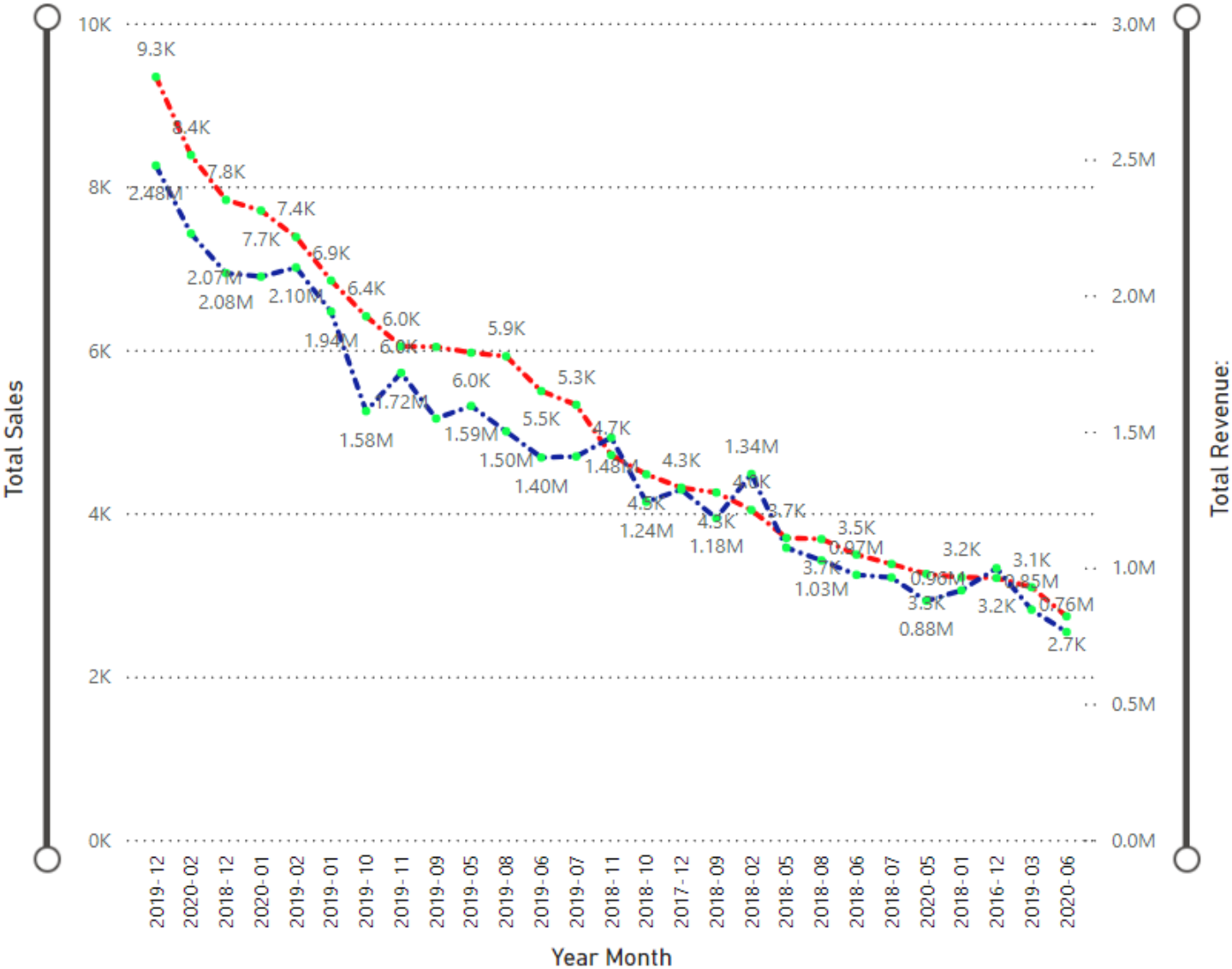
Sales Analysis:

1. Overall sales performance is visualized over time (by year and month).
2. Sales by product, store, and currency are presented.
3. There's a time intelligence analysis comparing current and previous year sales.

Sales Analysis

Sales by Store
country, state, open_d... ∨

- ∨ ☐ Australia
- ∨ ☐ Canada
- ∨ ☐ France
- ∨ ☐ Germany
- ∨ ☐ Italy
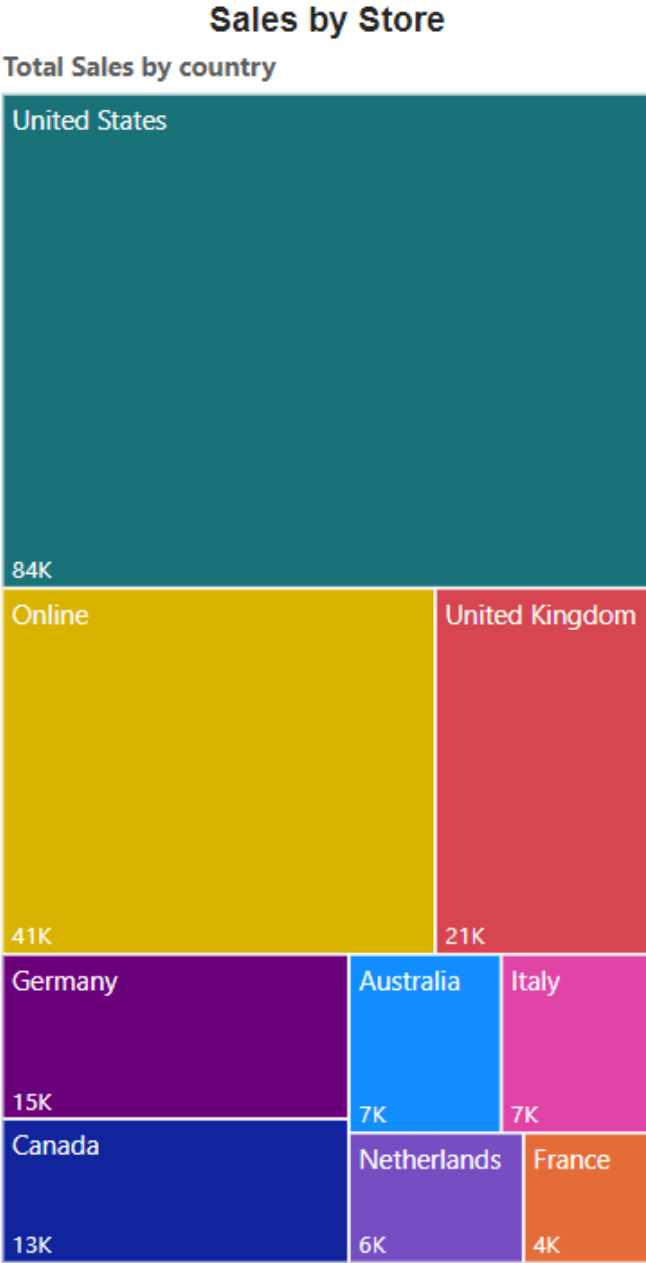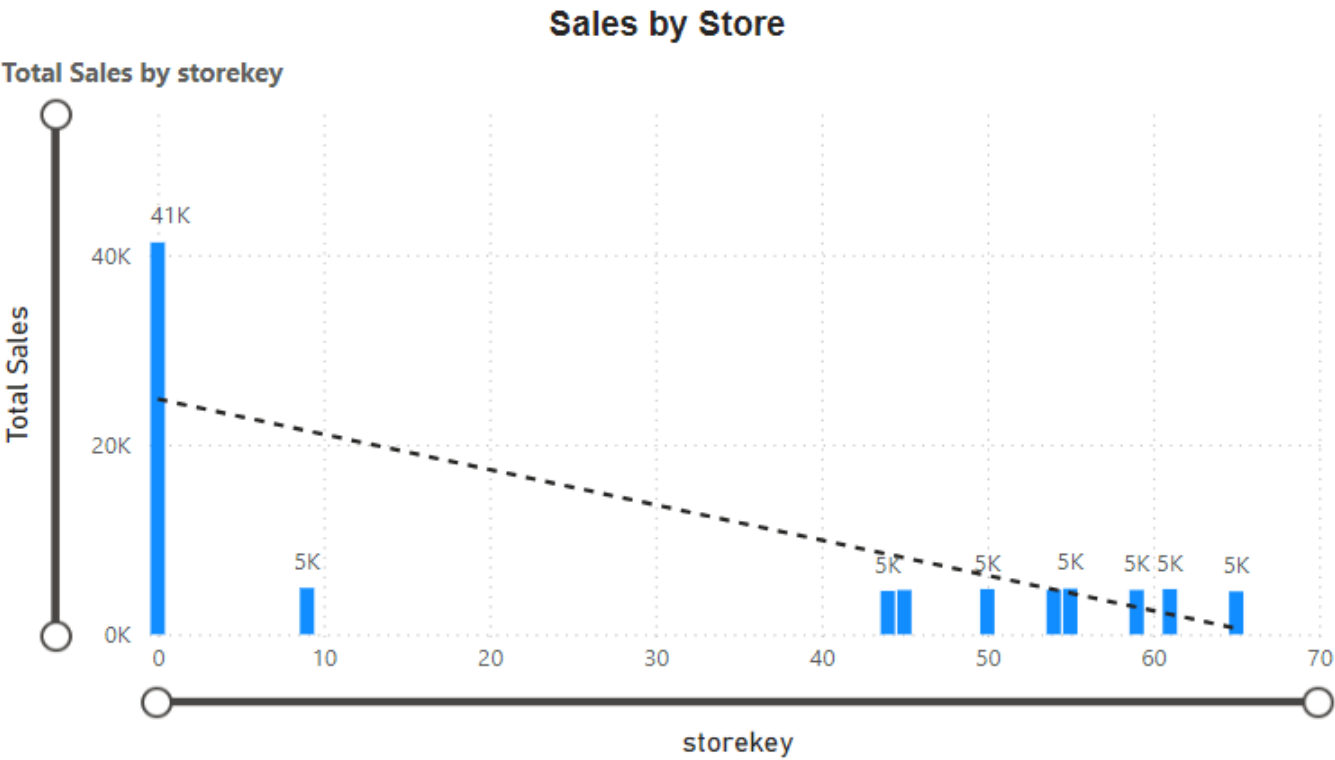- ∨ ☐ Netherlands
- ∨ ☐ United Kingdom
- ∨ ☐ United States

67
Total Stores

198K
Total Sales

Sales by Store
Total Sales by storekey

Sales by Store

Country	Total Sales	Total Revenue:	Sum of square_meters	Sales per Square Meter
⊟ **Australia**	7085	20,99,141.07	9,260.00	4.59
⊞ **Australian Capital Territory**	871	2,43,029.93	595.00	1.46
⊞ **Northern Territory**	61	15,175.99	665.00	0.09
⊞ **South Australia**			2,000.00	
Total	197757	5,57,55,479.59	92,545.00	141.03

23.09M
Order Value

55.76M
Total Revenue:
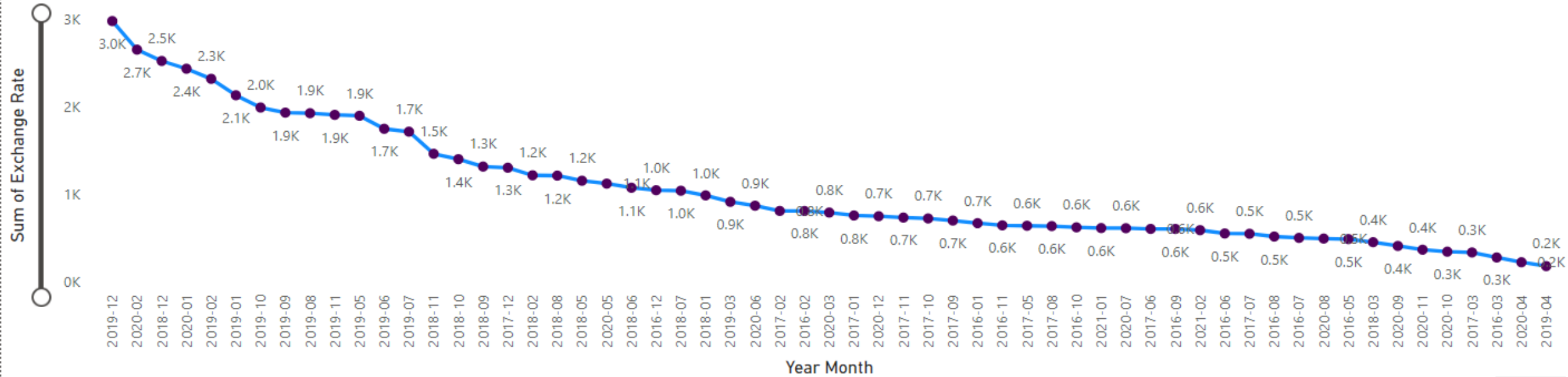
Sales by Store
Total Sales by country

Currency and Financial:

1. Sales are conducted in multiple currencies including AUD, CAD, EUR, GBP, and USD.
2. Each currency accounts for about 20% of the total revenue, suggesting a balanced international presence.
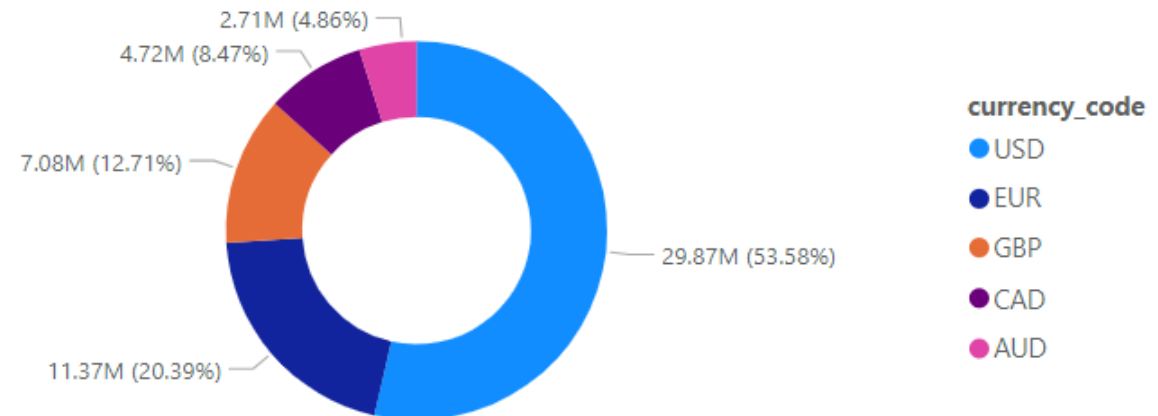
Sales Analysis

Sales by Currency

Sum of Exchange Rate by Year Month

Year Month

Year
- ☐ 2016
- ☐ 2017
- ☐ 2018
- ☐ 2019
- ☐ 2020
- ☐ 2021

55.76M
Total Revenue:

62.41K
Sum of Exchange Rate

Sales by Currency

Total Revenue: by currency_code

2.71M (4.86%)
4.72M (8.47%)
7.08M (12.71%)
29.87M (53.58%)
11.37M (20.39%)

currency_code
- ● USD
- ● EUR
- ● GBP
- ● CAD
- ● AUD

Time Intelligence:

1. The data covers sales from 2016 to 2021, with some forecasting into 2022.
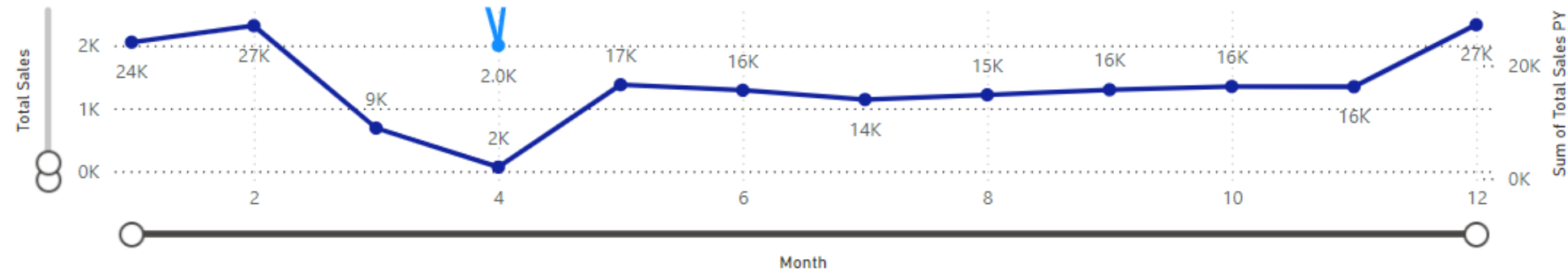2. There are year-over-year comparisons of sales performance.

Sales Analysis

Time Intelligence

Total Sales and Sum of Total Sales PY by Month

● Total Sales ● Sum of Total Sales PY

198K

Total Sales

Top N Analysis
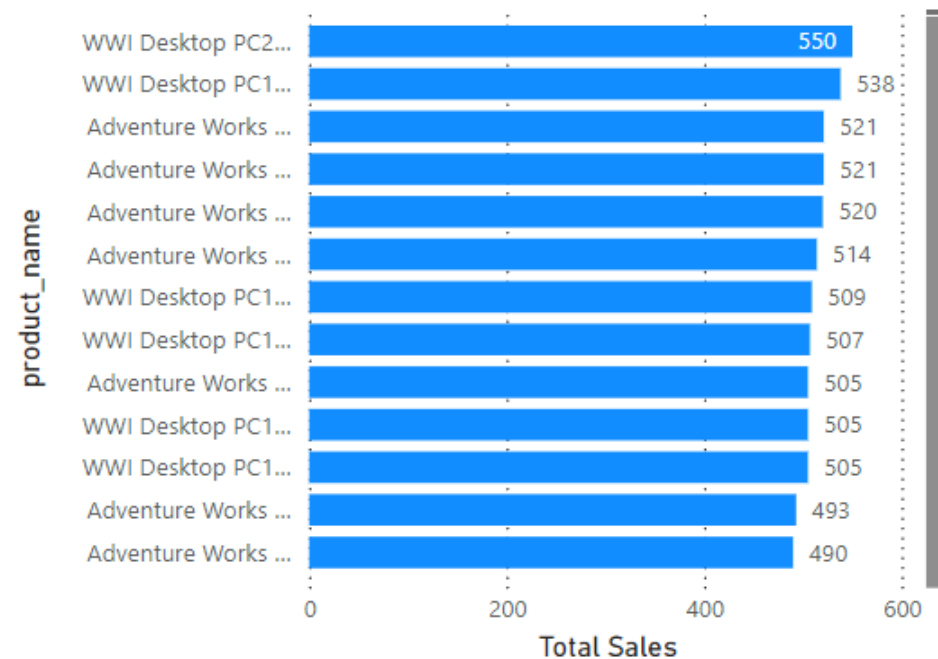
Sales Forecasting

Total Sales by product_name

product_name	Total Sales
WWI Desktop PC2...	550
WWI Desktop PC1...	538
Adventure Works ...	521
Adventure Works ...	521
Adventure Works ...	520
Adventure Works ...	514
WWI Desktop PC1...	509
WWI Desktop PC1...	507
Adventure Works ...	505
WWI Desktop PC1...	505
WWI Desktop PC1...	505
Adventure Works ...	493
Adventure Works ...	490

Total Sales by Year, Quarter, Month and Day
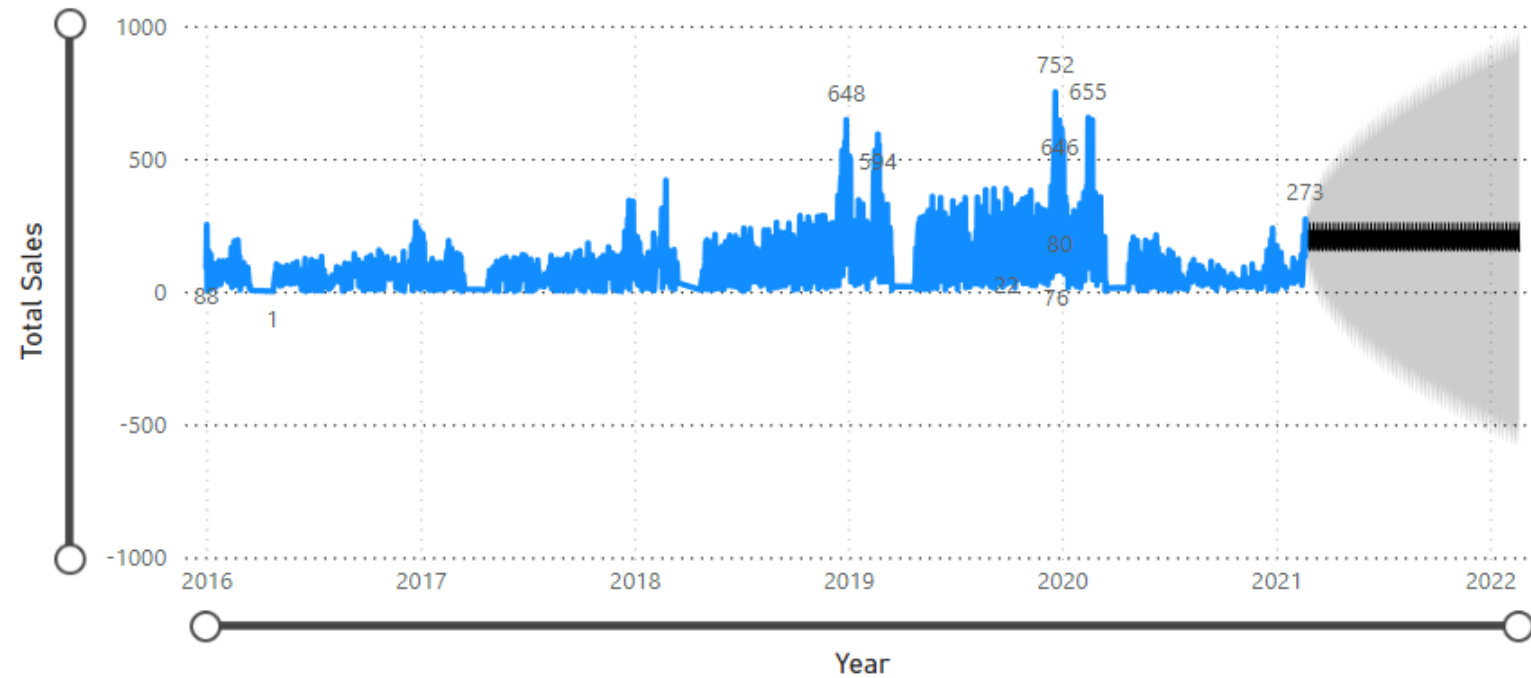
Product Analysis:

1. Various product categories are sold, including computers, cell phones, audio equipment, and cameras.
2. The most popular products seem to be desktop PCs and Adventure Works branded items.
3. There's a profit margin analysis showing the difference between unit cost and unit price for different products.

Product Popularity:

1. Certain desktop PC models and Adventure Works products appear to be the most popular items.
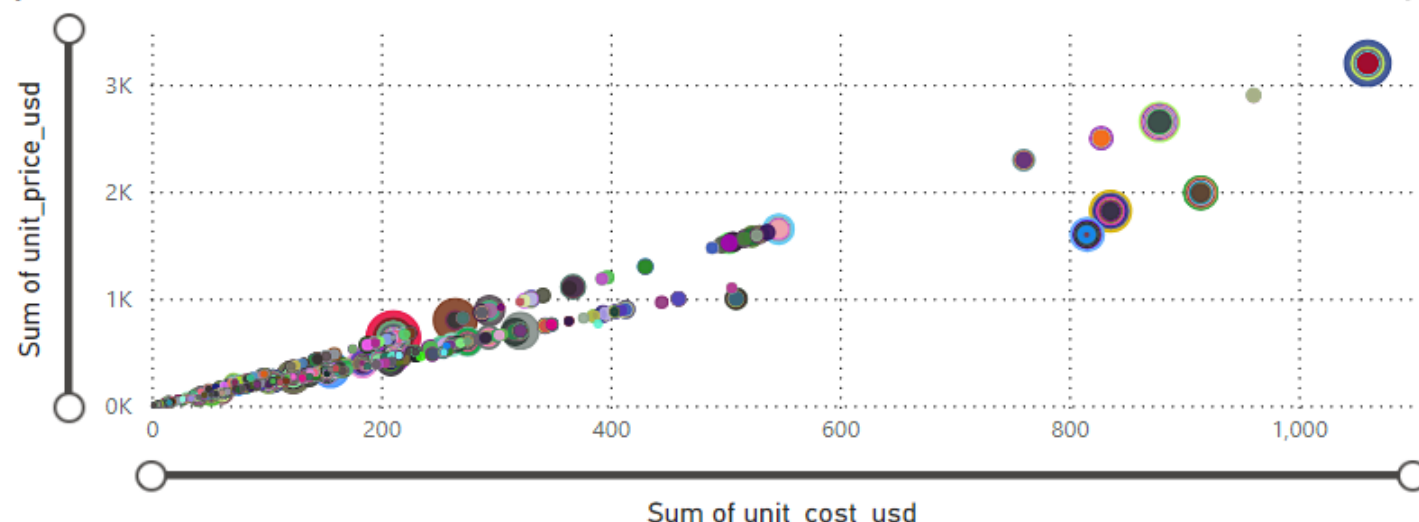
Product Analysis

Brand
- [ ] A. Datum
- [ ] Adventure Works
- [ ] Contoso
- [ ] Fabrikam
- [ ] Litware
- [ ] Northwind Traders
- [ ] Proseware
- [ ] Southridge Video
- [ ] Tailspin Toys
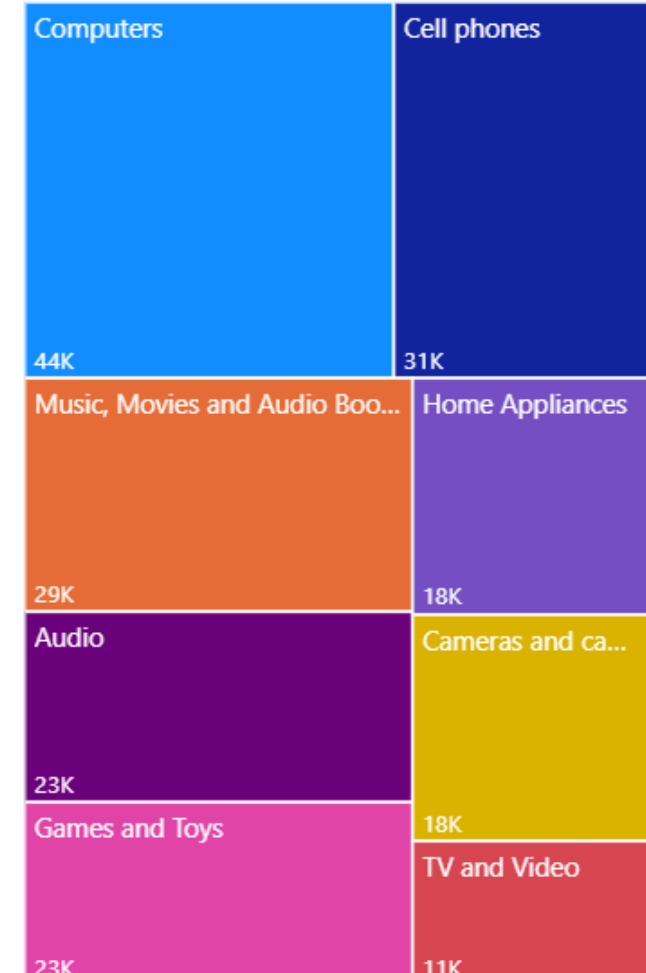- [ ] The Phone Company
- [ ] Wide World Importers

Profitability Analysis

Sum of unit_cost_usd, Sum of unit_price_usd and Profit Margin by product_name

product_name ● A. Datu... ● A. Datu... ● A. Datu... ● A. Datu... ● A. Datu... ● A. Datu... ● A. Datu... ● A. Datu...

Sum of unit_price_usd (y-axis): 0K – 3K
Sum of unit_cost_usd (x-axis): 0 – 1,000

Product Popularity Analysis

Total Sales by product_name

product_name	Total Sales
WWI Desktop PC2.33 X...	550
WWI Desktop PC1.80 E...	538
Adventure Works Deskt...	521
Adventure Works Deskt...	521
Adventure Works Deskt...	520
Adventure Works Deskt...	514
WWI Desktop PC1.60 E...	509
WWI Desktop PC1.60 E...	507
Adventure Works Deskt...	505

55.76M
Total Revenue:

198K
Total Sales

Category Analysis

Total Sales by category

Computers	Cell phones
44K	31K

Music, Movies and Audio Boo...	Home Appliances
29K	18K

Audio	Cameras and ca...
23K	18K

Games and Toys	TV and Video
23K	11K

2.66
Profit Margin

Product Analysis:

1.Product popularity is shown through sales by product name.
2.There's profitability analysis comparing unit cost and unit price.
3.Category analysis displays total sales by product category.

Store Analysis:

1. Store sizes vary, with an average store size of 1.4K square meters.
2. The United Kingdom has the largest average store size at 1.8K square meters.
3. There's an analysis of store age vs. size, indicating variations in store characteristics across countries.

Geographic Distribution:

1. Sales are spread across multiple countries, with the United States having the highest sales at 84,000 units.
2. Other significant markets include the United Kingdom, Germany, Canada, and Australia.
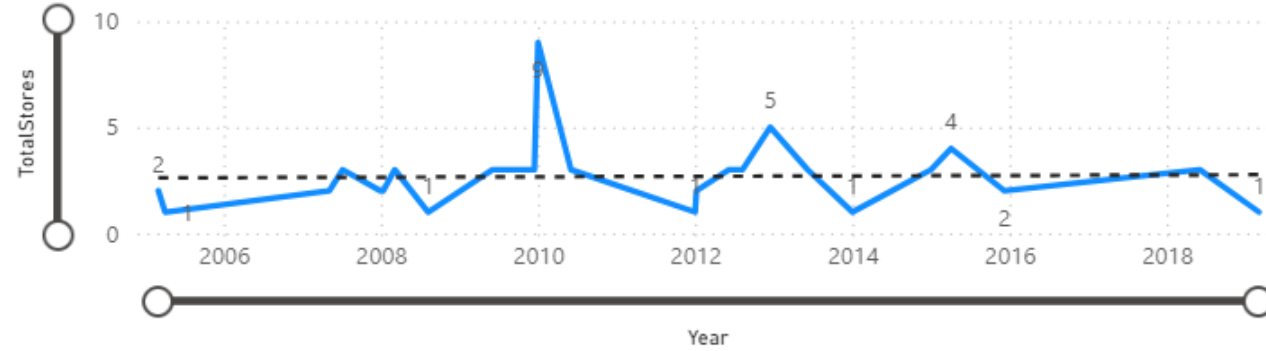3. There are 67 total stores across these countries.

Store Analysis

Stores Opened Over Time

Country

- [ ] Australia
- [ ] Canada
- [ ] France
- [ ] Germany
- [ ] Italy
- [ ] Netherlands
- [ ] United Kingdom
- [ ] United States

TotalStores by Year, Quarter, Month and Day

Total Stores by Country

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Store Age vs. Size

Store Age (Days) and Sum of square_meters by Country
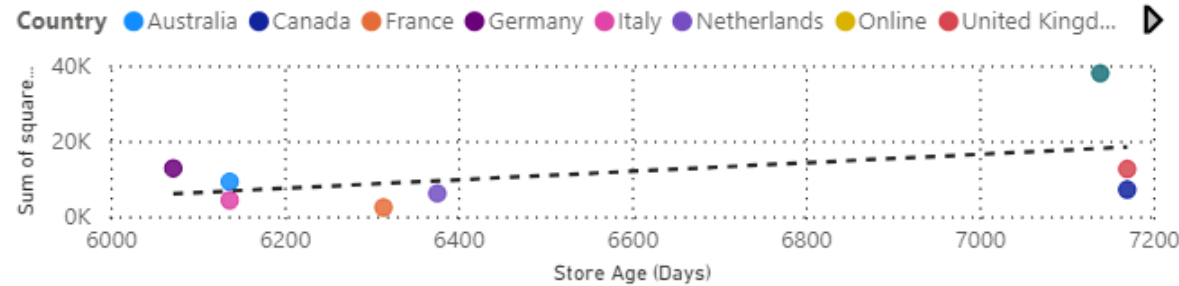
open_date

04-03-2005   05-03-2019

Country ● Australia ● Canada ● France ● Germany ● Italy ● Netherlands ● Online ● United Kingd...

1.40K
Avg Store Size

TotalStores
67

Store Size Distribution

Sum of square_meters

Largest Stores by Country

Country	State	Sum of square_meters
United States	Alaska	1,190.00
United States	Arkansas	2,000.00
United Kingdom	Armagh	1,300.00
Australia	Australian Capital Territory	595.00
United Kingdom	Ayrshire	2,100.00
United Kingdom	Belfast	1,800.00
Total		**71,280.00**

Average Store Size by Country

Avg Store Size by Country

Country	Avg Store Size
United Kingdom	1.8K
United States	1.6K
Australia	1.5K
Italy	1.4K
Canada	1.4K
Germany	1.4K

Store Analysis:

1. Store distribution by country is presented on a map.
2. Store size distribution and stores opened over time are visualized.
3. There's analysis of average store size by country and largest stores.

These insights suggest a global electronics retail operation with a diverse product range, international customer base, and multi-currency transactions. The business appears to be analyzing various aspects of its operations including sales trends, store performance, product popularity, and customer demographics to inform strategic decisions.

Insights:

1. Customer Purchasing Behavior:
The company has a total of 26,000 orders, indicating a frequency of purchase that suggests a steady customer engagement. This can be leveraged to enhance customer loyalty programs.

2. Sales Performance:
Although there are fluctuations in sales, the total revenue remains stable around 0.9 million. This stability indicates a solid customer base, even in the absence of detailed trends.

3. Product Analysis:
The popularity of desktop PCs and Adventure Works branded items suggests these products could be focal points for marketing strategies.

4. Store Operations:
With 67 stores and an average size of 1.4K square meters, there is potential for optimizing store layouts to enhance customer experience and sales.

5. Currency and Financial:
The balanced revenue distribution across multiple currencies indicates a well-diversified market presence, which can be further capitalized on through targeted international marketing strategies.

Actionable Recommendations:

1. Enhance Customer Loyalty Programs:

Implement loyalty programs to encourage repeat purchases. Given the frequency of 26,000 orders, incentivizing repeat business could lead to increased sales volume.

2. Focus on Popular Products:

Increase marketing efforts for desktop PCs and Adventure Works products, possibly through promotions or bundled offers, to capitalize on their popularity.

3. Store Optimization:

Conduct analyses on store layouts and customer flow to identify areas for improvement. Consider trialing different layouts in select stores to see if sales increase.

4. Cross-Promotional Strategies:

Consider cross-promotions between popular products and other categories to boost sales of less popular items.

5. Monitor and Adapt:

Even without detailed sales trend data, it's crucial to continuously monitor sales performance and customer feedback to adapt strategies as needed.

6. Forecasting and Inventory Management:

Although specific data on inventory turnover is not available, implementing a basic forecasting model based on historical sales data could help optimize inventory levels and reduce costs.

7. Visualizations and Reporting:

Create visually compelling reports and dashboards to monitor key performance indicators (KPIs) related to sales, customer engagement, and product performance. This will help in making informed decisions.

These insights and recommendations can help Global Electronics enhance customer satisfaction, maximize revenue, and drive overall business growth.