

Global Electronics Retailer

A Data Analysis Project.

one of many steps in the Data Analysis Specialist Track.

Main Group of :
Data Analyst Specialist_SHR1_DAT1_G1e

At Digital Egypt Pioneers Initiative -
DEPI



A team work of

Analytics Aces Team



- Group Members:**

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Eng.
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Global Electronics Retailer

- Global Electronic retailer which runs a worldwide company to sell different electronics products for its customer.
- Retailer timeseries data for Global Electronic were provided including details on the customer and location, product, sales, store, and delivery in the period between Jan 2016 and Feb 2021.
- The main goal of this project is to create an interactive dashboard using PowerBI for managers to track the overall performance of the company,in addition to Analyzing:
 - Sales
 - Customer Behavior
 - Product Performance
 - Store and Delivery





Tools used:



Excel



Power BI

Main Steps:

- Profile and prepare the data.
- Enrich and explore the data.
- Build a relational data model.
- Build an interactive dashboard.
- Make different insights.
- Propose solutions and recommendations.

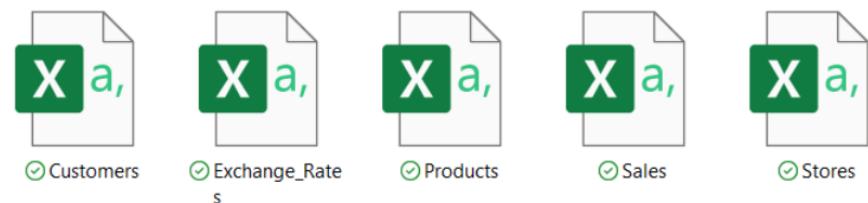


Table	Field
Sales	Order Number
	Line Item
	Order Date
	Delivery Date
	CustomerKey
	StoreKey
	ProductKey
	Quantity
	Currency Code

Table	Field
Exchange Rates	Date
	Currency
	Exchange

Table	Field
Stores	StoreKey
	Country
	State
	Square Meters
	Open Date

Table	Field
Customers	CustomerKey
	Gender
	Name
	City
	State Code
	State
	Zip Code
	Country
	Continent
	Birthday

Profile and prepare the data

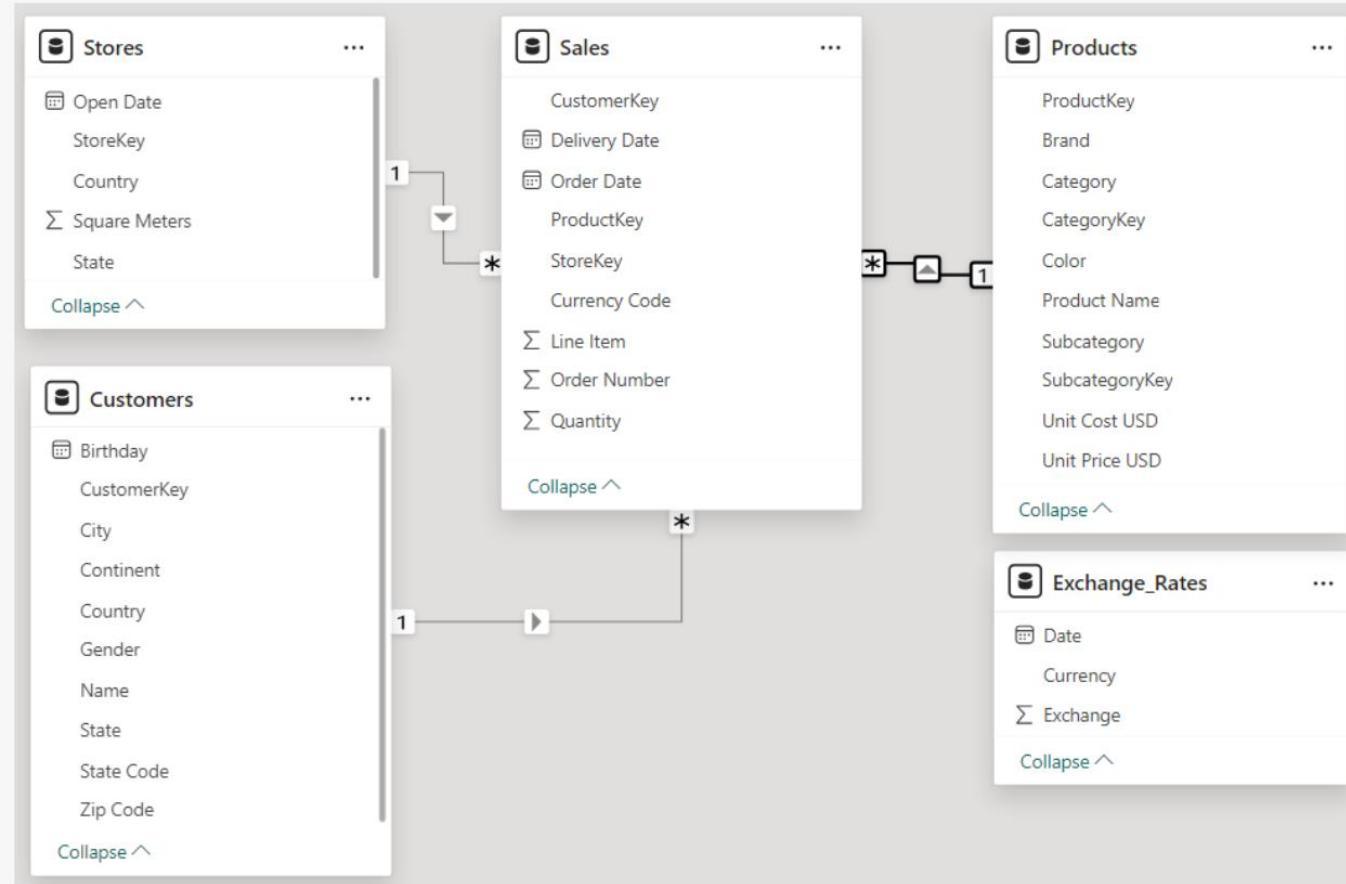
Data provided is about 5 excel.csv files.

Making a 5 tables as shown.

Table	Field
Products	ProductKey
	Product Name
	Brand
	Color
	Unit Cost USD
	Unit Price USD
	SubcategoryKey
	Subcategory
	CategoryKey
	Category

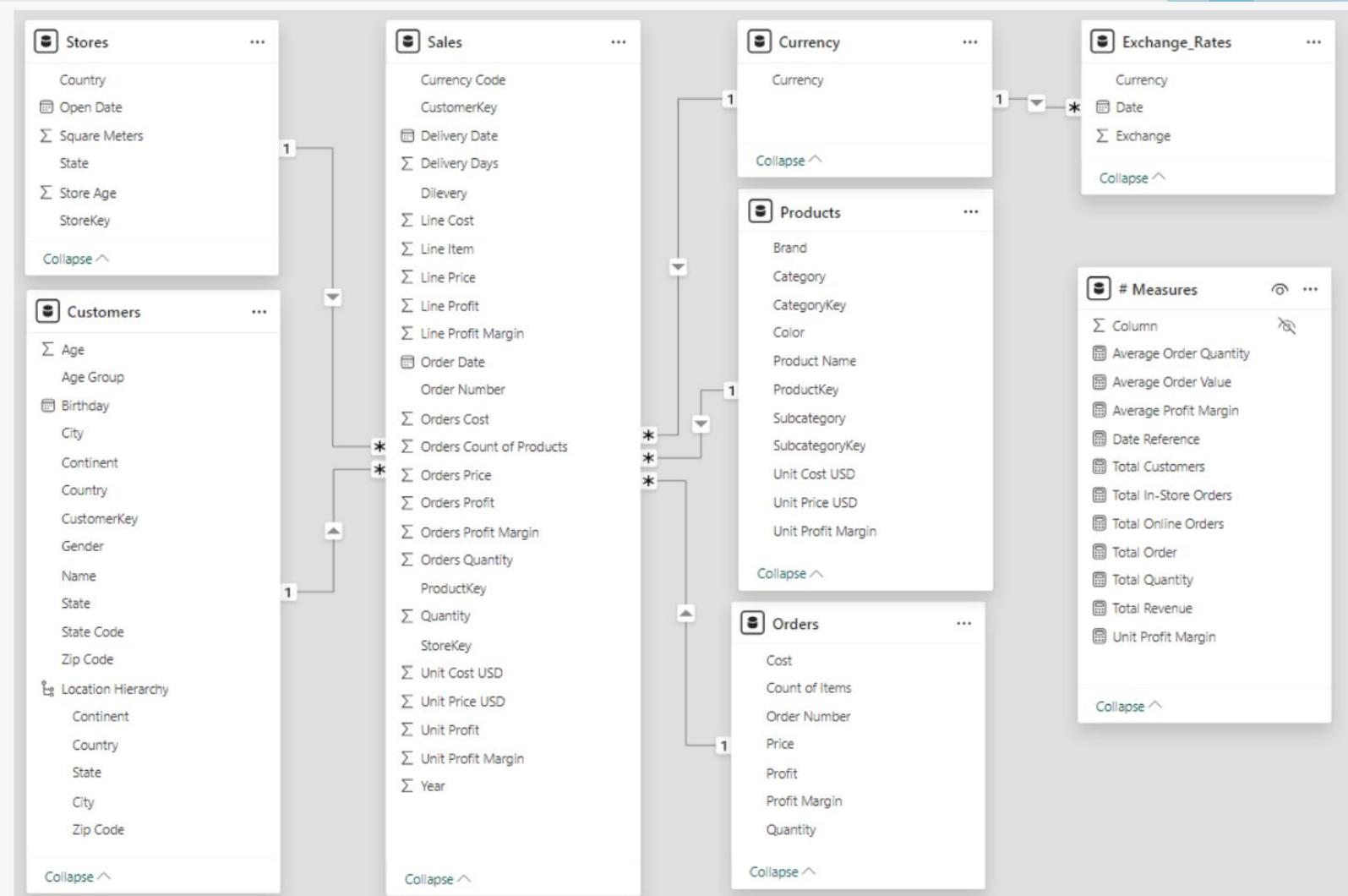
Enrich and explore the data

Here are The 5 tables after cleaning data, removing errors in Power Query and building initial Data Model.



Build a relational data model

Here we can see the result after exploring the data, enriching and transforming it, building our final Data Model and working on Dax measures.



Build an interactive dashboard

We've built a full interactive dashboard presenting the main KPI's and most important charts all with a different kinds of slicers.

Global Electronics

Dilevery Category Subcategory Date

All All 1/1/2016 2/20/2021 Last Update Feb 20th 2021

Total Revenue	Total Cost	Gross Profit	Avg Order Value	Total Stores	Avg Dilevery Days
\$55.76M	\$23.09M	\$32.66M	\$2.12K	57	4.53

Which Brand Earned More Revenue ?

Customer Age Group ● 19-29 ○ 30-39 □ 40-49 ■ 50-59 ▲ 60-89

Brand	Revenue
Adventure Works	\$11.85M
Contoso	\$10.79M
Wide World Importers	\$9.17M
Fabrikam	\$6.81M
The Phone Company	\$5.39M
Proseware	\$3.21M
Litware	\$2.66M
Southridge Video	\$2.58M
A. Datum	\$1.49M
Northwind Traders	\$1.13M
Tailspin Toys	\$0.68M

Which Location Generated More Revenue Drilled up to Country?

Customer Gender ● Female ○ Male

Country	Revenue
United States	\$29.87M
United Kingdom	\$7.08M
Germany	\$5.41M
Canada	\$4.72M
Australia	\$2.71M
Italy	\$2.48M
Netherlands	\$1.96M
France	\$1.52M

TOP 5 PRODUCTS WE SOLD

Product Name	Total Revenue
WWI Desktop PC2.33 X2330 Black	\$505,450
Adventure Works Desktop PC2.33 XD233 Silver	\$466,089
Adventure Works Desktop PC2.33 XD233 Brown	\$464,151
Adventure Works Desktop PC2.33 XD233 Black	\$447,678
Adventure Works Desktop PC2.33 XD233 White	\$437,019
Total	\$2,320,387

Prezi

Make different insights

Firstly We've Sales Analysis



Sales Report

Overview

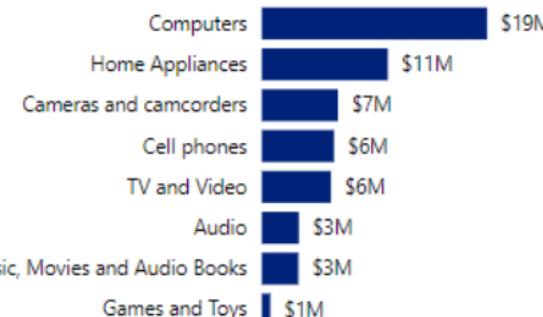
Sales Report

Stores Report

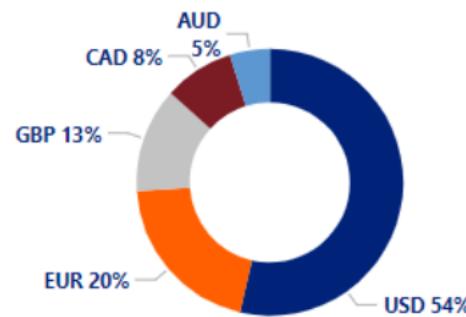
Customers Report

Products Report

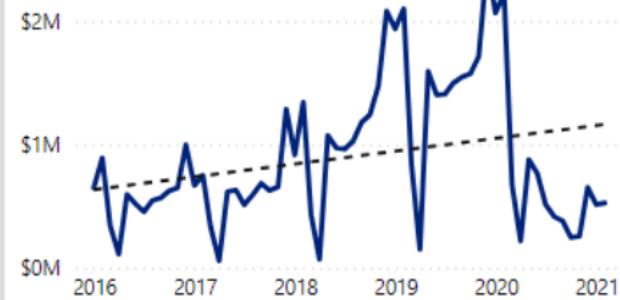
Which Product Category Earned More Revenue ?



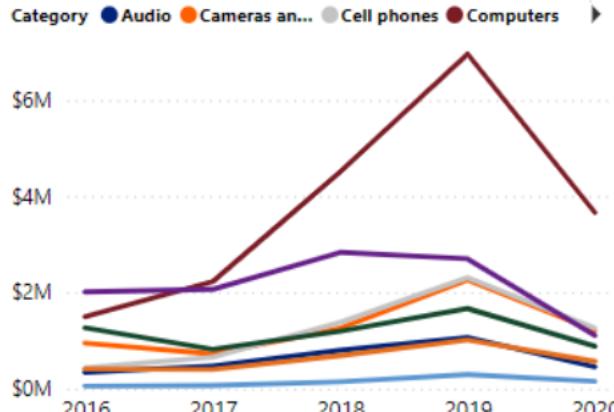
Which Currency Customers Paid More ?



Revenue Trend Drilled Down To Months



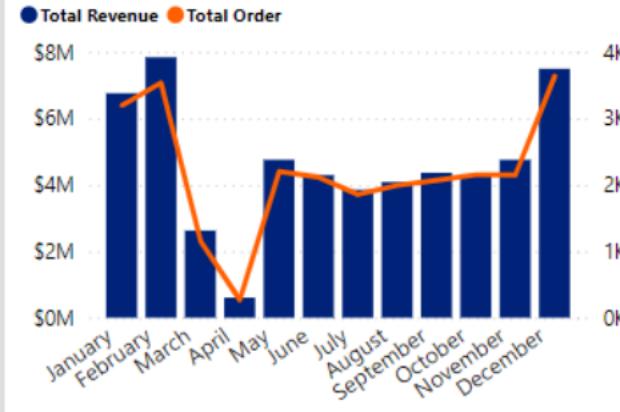
Which Category Has the Highest Sales Growth ?



Subcategory Profit Margin

Subcategory	Average Profit Margin
Digital SLR Cameras	60.34%
Projectors & Screens	57.54%
Digital Cameras	57.18%
Movie DVD	57.14%
Monitors	56.54%
Printers, Scanners & Fax	56.49%
Camcorders	56.32%
Smart phones & PDAs	55.87%
Bluetooth Headphones	55.60%
Touch Screen Phones	55.22%
Televisions	55.16%
Total	54.90%

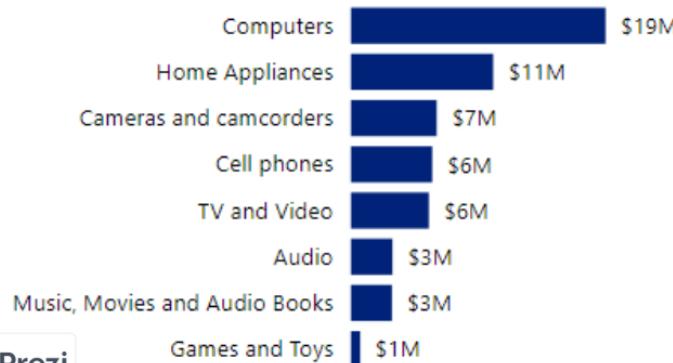
Revenue vs. Order Comparison



Brands We Sell:

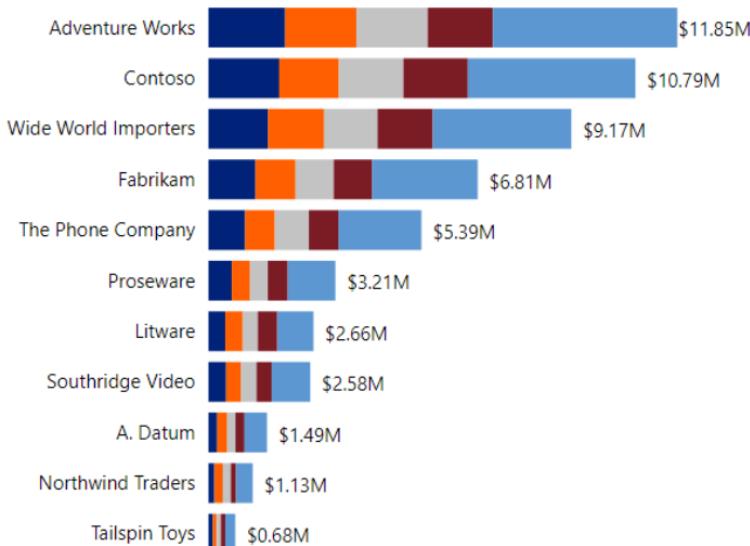
- Adventure Works has the highest revenue with \$11.85M .
- Talispen Toys has the lowest with \$0.68M
- Age group 60-89 has the major part of revenue of all brands.

Which Product Category Earned More Revenue ?



Which Brand Earned More Revenue ?

Customer Age Group ● 19-29 ● 30-39 ● 40-49 ● 50-59 ● 60-89



Product categories Revenue :

- Computers comes 1st with \$19M .
- Games and toys comes last with \$1M .

Which Location Generated More Revenue Drilled up to Country?

Customer Gender ● Female ● Male



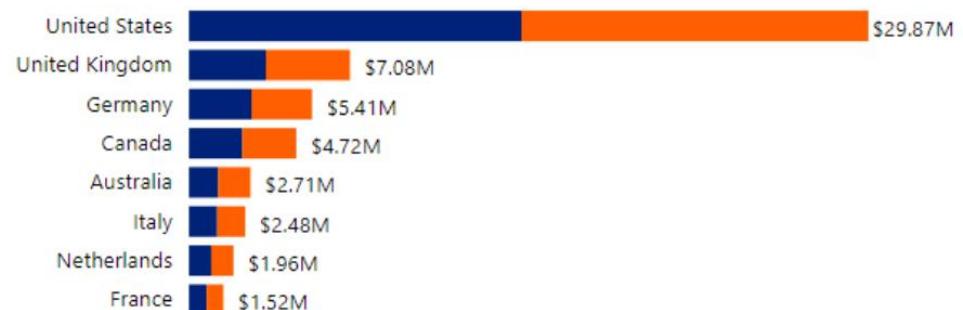
Sales in Continents and countries:

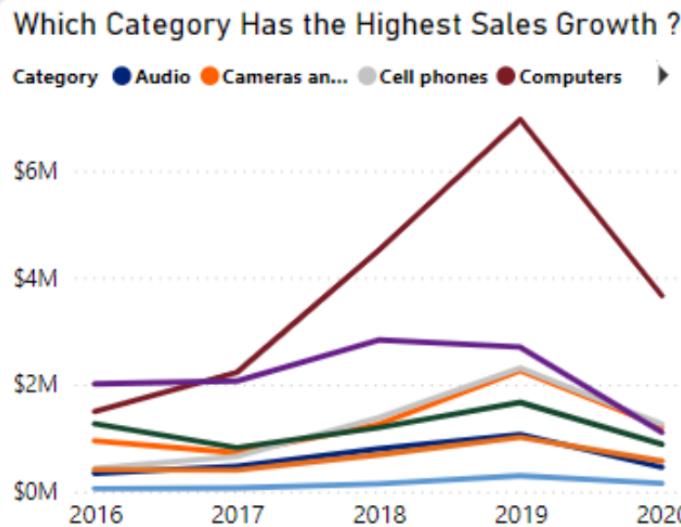
- North America has the highest with \$34.6M .
- Australia is the least continent makes about \$2.71M .

- The US has the large number by \$29.87M .
- France has the lowest with \$1.52M .

Which Location Generated More Revenue Drilled up to Country?

Customer Gender ● Female ● Male





Product Category Sales Growth:

- Computers makes the highest growth from \$1.5M in 2016 to \$3.7M in 2020 with a peek in 2019 with \$7M .
- Games and Toys Makes the lowest Growth from \$52.5K to \$154K .
- Home Appliances makes a negative Growth from \$2M to \$1.1M .

2016

Audio	\$339,347.76
Cameras and camcorders	\$946,180.01
Cell phones	\$429,497.27
Computers	\$1,496,820.33
Games and Toys	\$52,529.59
Home Appliances	\$2,010,476.12
Music, Movies and Audio Books	\$405,566.38
TV and Video	\$1,266,376.1

2019

Audio	\$1,064,197.77
Cameras and camcorders	\$2,260,124.97
Cell phones	\$2,311,957.73
Computers	\$6,958,430.89
Games and Toys	\$295,643.31
Home Appliances	\$2,700,287.88
Music, Movies and Audio Books	\$1,008,971.45
TV and Video	\$1,664,768.48

2020

Audio	\$452,725.55
Cameras and camcorders	\$1,209,222.04
Cell phones	\$1,256,725.73
Computers	\$3,665,122.72
Games and Toys	\$154,189.13
Home Appliances	\$1,107,301.56
Music, Movies and Audio Books	\$566,479.4
TV and Video	\$882,866.01

Revenue Trend Drilled Down To Months



Revenue and Order Trends:

- Trends Shows a sales peek in December, January and February monthes .
- A sharp decline in April .

- There is a positive Correlation between Revenue and Orders .

Revenue vs. Order Comparison



Secondly Comes Stores Performance

Stores Report

Location: All | Dilevery: All | Brand: All | Date: 1/1/2016 - 2/20/2021 | Last Update: Feb 20th 2021

Dilevery Performance Trend

Total Stores: 57 | **Avg Dilevery Days**: 4.53 | **Total Orders**: 26.33K

In-Store vs. Online Orders

Top Store

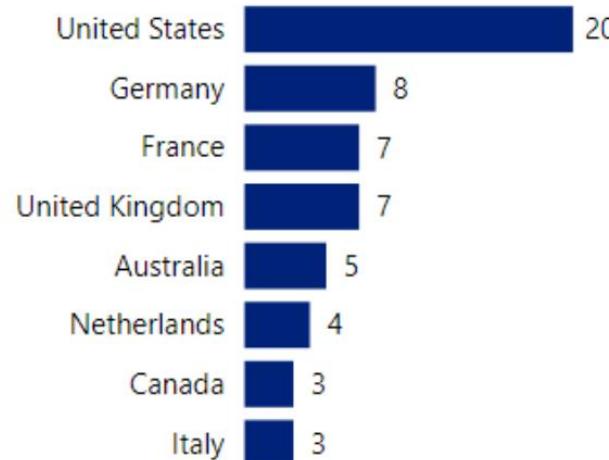
StoreKey	Country	Total Order
0	Online	5580
9	Canada	658
54	United States	629
61	United States	624
55	United States	622
59	United States	619
45	United States	617
44	United States	606
50	United States	605
57	United States	605
65	United States	596
8	Canada	583
47	United States	582
51	United States	581
64	United States	566
43	United States	558
66	United States	545
48	United States	539
52	United States	524
Total		26326

Store Size vs. Quantity Sold Comparison

which Country Has More Stores ?

Country	Number of Stores
United States	20
Germany	8
France	7
United Kingdom	7
Australia	5
Netherlands	4
Canada	3
Italy	3

which Country Has More Stores ?



Global warehouse allocation:

The United States has the highest number of stores by 20 .

Canada and Italy has the lowest number by 3 .

.

In-Store & Online Order Rates:

In-Store orders has the highest rate with 79% .

Online Performance is the lowest with 21% .

In-Store vs. Online Orders



Stores with the highest sales volume:

Top Store

StoreKey	Country	Total Order
0	Online	5580
9	Canada	658
54	United States	629
61	United States	624
55	United States	622
59	United States	619
45	United States	617
44	United States	606
50	United States	605
57	United States	605
65	United States	596
8	Canada	583
47	United States	582
51	United States	581
64	United States	566
43	United States	558
66	United States	545
48	United States	539
52	United States	521
Total		26326

The top 10 stores generates in-store revenue 9 of them located in the US and 1 only in Canada.

Top 10 Store

StoreKey	Country	Total Revenue	Total Order
55	United States	\$1,417,885.41	622
50	United States	\$1,394,738.06	605
54	United States	\$1,384,396.24	629
9	Canada	\$1,336,150.06	658
57	United States	\$1,325,611.89	605
45	United States	\$1,318,787.92	617
61	United States	\$1,305,684.43	624
59	United States	\$1,302,272.44	619
64	United States	\$1,259,350.98	566
43	United States	\$1,250,255.14	558
Total		\$13,295,132.57	6103

Bottom 10 Store

StoreKey	Country	Total Revenue	Total Order
1	Australia	\$243,029.93	111
18	France	\$226,078.88	81
15	France	\$205,119.67	93
16	France	\$199,009.69	91
28	Italy	\$187,109.49	82
12	France	\$183,091.04	90
17	France	\$159,607.5	79
13	France	\$150,925.12	80
14	France	\$105,714.05	57
2	Australia	\$15,175.99	4
Total		\$1,674,861.36	768

The Bottom 10 stores 7 of them located in France, 2 in Australia and 1 in Italy.

Dilevery Performance Trend



Delivery performance:

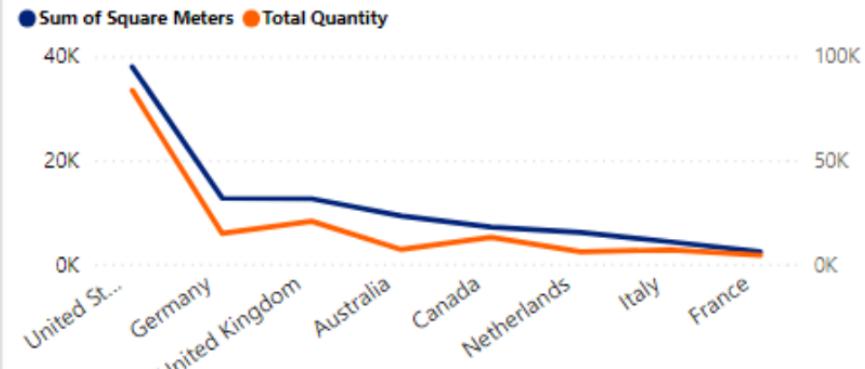
There's a general downward trend in delivery days from 2016 to 2021 from 8 to 4 days .

Stores Capacity and Quantity Sold levels:

There's a positive correlation between store size and capacity with product quantity sold .

Germany, Australia, Netherlands have a decline in quantity volume compared to store size .

Store Size vs. Quantity Sold Comparison



Thirdly We've Customers Analysis

GLOBAL ELECTRONICS

Customers Report

Last Update Feb 20th 2021

Location: All | Delivery: All | Brand: All | Date: 1/1/2016 - 2/20/2021

Overview

Sales Report

Stores Report

Customers Report

Products Report

Age Group Revenue vs Orders Comparison

Total Order (Blue Bar) Total Revenue (Orange Line)

Age Group	Total Order (K)	Total Revenue (M\$)
19-29	~4.5	~3.5
30-39	~4.2	~3.2
40-49	~4.0	~3.0
50-59	~4.2	~3.2
60-89	~10.5	~18.0

Total Customers: 11887

Average Customer Age: 52

Top Customer

Name	Country	Total Revenue	Total Order	Age
Matthew Flemming	United States	\$61,871.7	9	84
Karen Jones	United States	\$43,517.8	3	50
Zrina Topic	United States	\$42,788.04	7	59
Stefanie Hartmann	Germany	\$41,521.53	3	38
Stephan Rothstein	Germany	\$40,556.54	4	67
Gaspare Trevisan	Italy	\$40,225.01	14	29
Roy Le	Canada	\$38,813.88	3	39
Dennis Weissmuller	United States	\$38,191.06	4	63
Virgie Takacs	United States	\$37,319.88	3	58
Ollie Davis	United States	\$36,817.28	5	41
Michael Robertson	United Kingdom	\$36,664.3	8	61
Mie Huus	United States	\$36,067.47	3	60
Tyrone Lewis	United States	\$35,806.19	6	66
Paul Warren	United States	\$35,780.33	10	41
Esin Holman	Netherlands	\$35,710.61	4	37
Bibiana Ferri	Italy	\$34,963.76	6	53
Charles Collins	United States	\$34,858.48	7	83
Kyle Valentine	United States	\$34,490.76	5	79
Wayne Banks	United States	\$34,484.28	6	41
Felix Bauer	Germany	\$24,242.20	2	62
Total		\$55,755,479.59	26326	

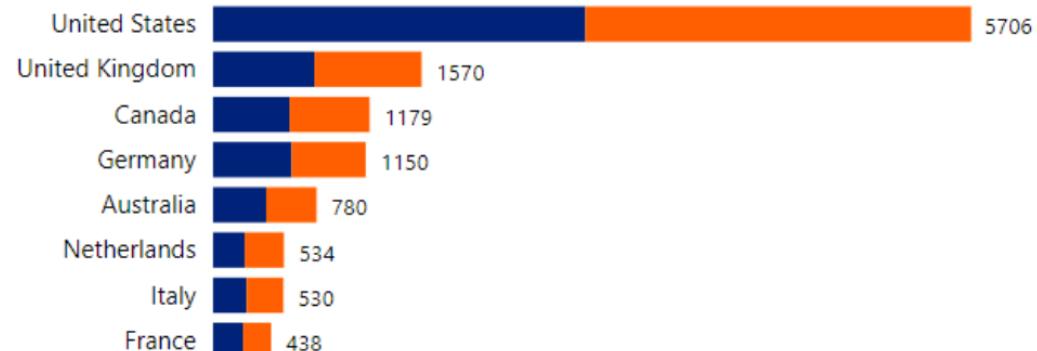
Which Country Has More Customers ?

Gender: Female (Blue) Male (Orange)

Country	Female (K)	Male (K)	Total (K)
United States	~5.2	~5.8	5706
United Kingdom	~1.2	~1.4	1570
Canada	~1.1	~0.8	1179
Germany	~1.1	~0.8	1150
Australia	~0.8	~0.5	780
Netherlands	~0.5	~0.3	534
Italy	~0.5	~0.3	530
France	~0.4	~0.3	438

Which Country Has More Customers ?

Gender ● Female ● Male



Customer Distribution by Country and Gender Size:

The US has the highest number of customers overall.

France have the lowest number of customers.

All with a balanced gender distribution.

Age Group Revenue vs Orders Comparison:

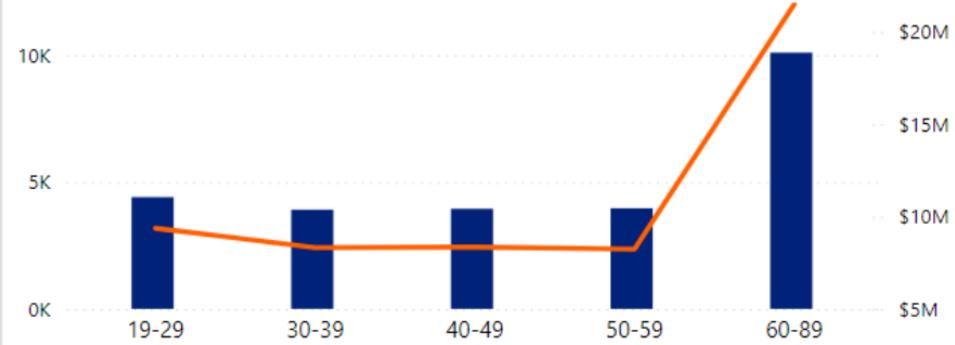
The 60-89 age group has the highest number of total orders with high relative total revenue.

The other groups have relatively similar numbers of total orders but lower total revenue compared to 60-89 group revenue



Age Group Revenue vs Orders Comparison

● Total Order ● Total Revenue



Customers in Details:

Top Customer					
Name	Country	Total Revenue	Total Order	Age	
Matthew Flemming	United States	\$61,871.7	9	84	
Karen Jones	United States	\$43,517.8	3	50	
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Stefanie Hartmann	Germany	\$41,521.53	3	38	
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Paul Warren	United States	\$35,780.33	10	41	
Esin Holman	Netherlands	\$35,710.61	4	37	
Bibiana Ferri	Italy	\$34,963.76	6	53	
Charles Collins	United States	\$34,858.48	7	83	
Kyle Valentine	United States	\$34,490.76	5	79	
Wesley Banks	United States	\$24,404.20	6	41	
Total		\$55,755,479.59	26326		

With this table we can have a detailed look at our customers and their relative revenue, orders and age values

Fourthly We've Products Analysis

Products Report

Location: All | Delivery: All | Brand: All | Date: 1/1/2016 - 2/20/2021 | Last Update: Feb 20th 2021

Which Country Sold More Quantity?

Country	Quantity
United States	106K
United Kingdom	25K
Germany	19K
Canada	17K
Australia	9K
Italy	8K
Netherlands	7K
France	5K

Total Products: 2492 | Average Order Quantity: 8

Which Brand Sold More Quantity ?

Brand	Quantity
Contoso	50K
Wide World Importers	27K
Southridge Video	25K
Adventure Works	20K
The Phone Company	19K
Tailspin Toys	17K
Fabrikam	11K
Proseware	9K
Northwind Traders	8K
A. Datum	6K
Litware	5K

Top Product

Product Name	Total Revenue	Total Quantity	Unit Profit Margin
WWI Desktop PC2.33 X2330 Black	\$505,450	550	33.13%
Adventure Works Desktop PC2.33 XD233 Silver	\$466,089	481	33.13%
Adventure Works Desktop PC2.33 XD233 Brown	\$464,151	479	33.13%
Adventure Works Desktop PC2.33 XD233 Black	\$447,678	462	33.13%
Adventure Works Desktop PC2.33 XD233 White	\$437,019	451	33.13%
WWI Desktop PC2.33 X2330 White	\$424,578	462	33.13%
WWI Desktop PC2.33 X2330 Brown	\$422,740	460	33.13%
Adventure Works 52" LCD HDTV X590 White	\$394,398.64	136	33.13%
Adventure Works 52" LCD HDTV X590 Black	\$374,098.71	129	33.13%
WWI Desktop PC2.33 X2330 Silver	\$360,248	392	33.13%
Adventure Works 52" LCD HDTV X590 Silver	\$353,798.78	122	33.13%
Total	\$55,755,479.59	197757	33.13%

Overview

Sales Report

Stores Report

Customers Report

Products Report

Which Country Sold More Quantity?

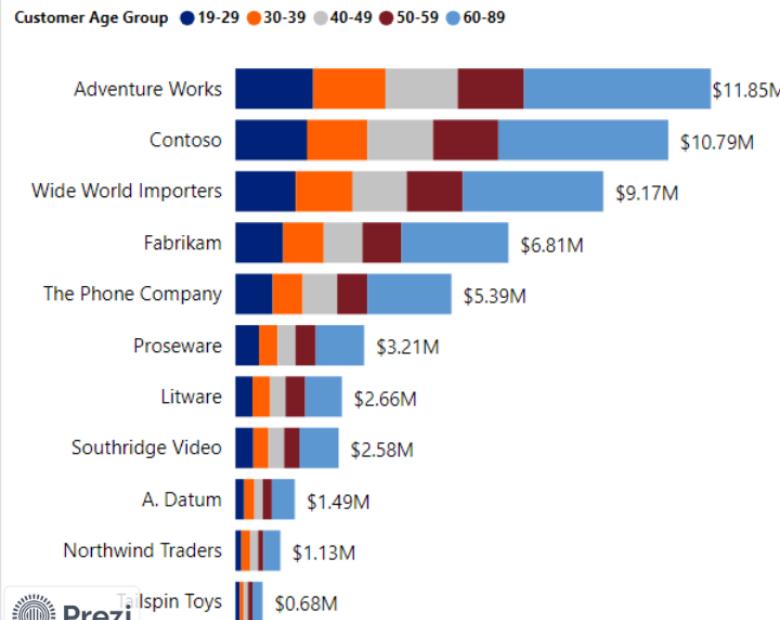


products quantity Sold per location:

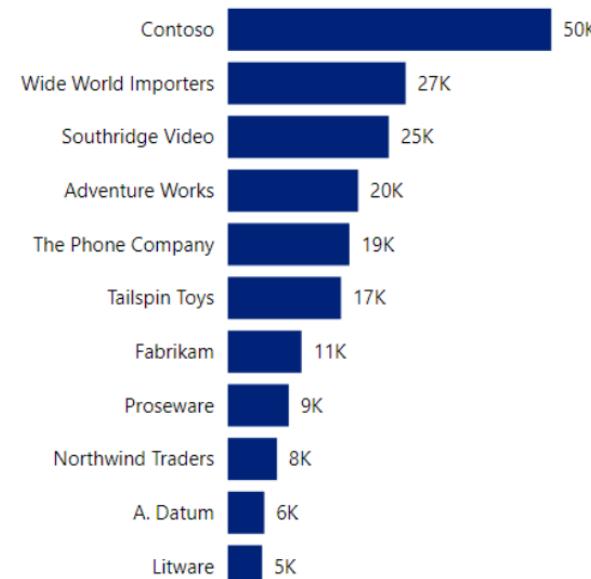
The us comes first with 106K.

France comes last with only 5K.

Which Brand Earned More Revenue ?



Which Brand Sold More Quantity ?



Brands Quantity Sold Comparison:

Contoso comes first with 50K.

Litware comes last with only 5K.

Products in Details:

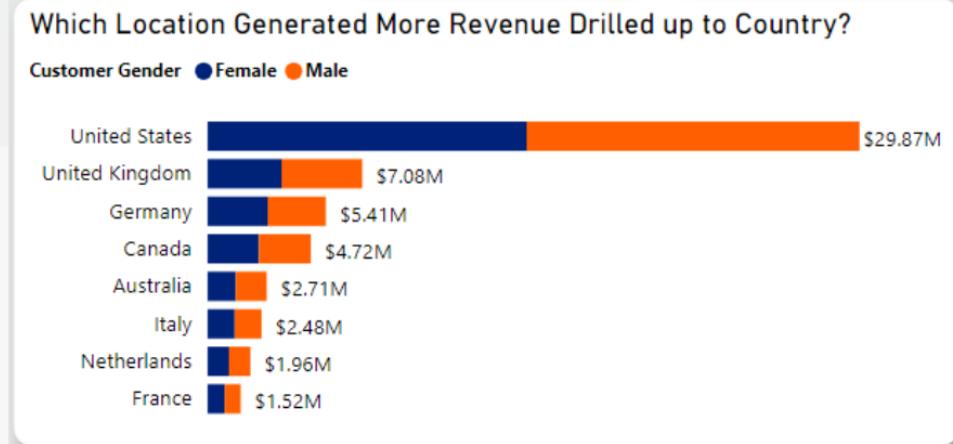
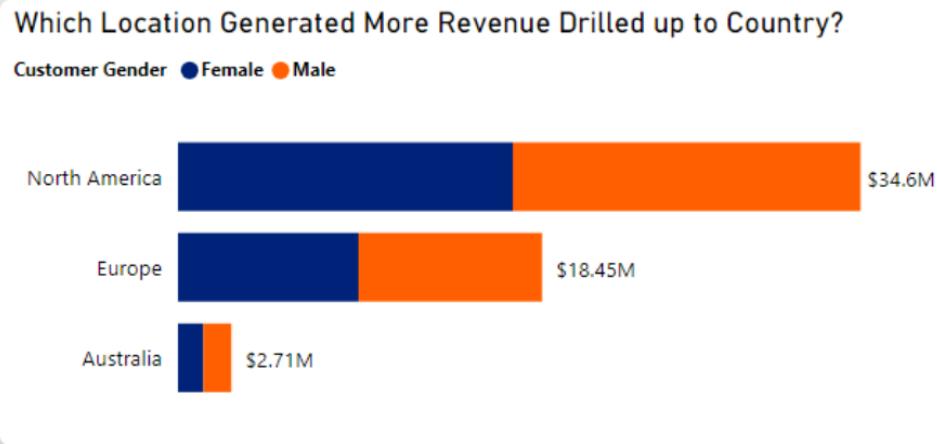
Here we have our products in detail with each product revenue, quantity and profit margin values

Top Product				
Product Name	Total Revenue	Total Quantity	Unit Profit Margin	
WWI Desktop PC2.33 X2330 Black	\$505,450	550	33.13%	
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Adventure Works Desktop PC2.33 XD233 White	\$212,070	521	33.13%	
Total	\$55,755,479.59	197757		

Propose solutions and recommendations

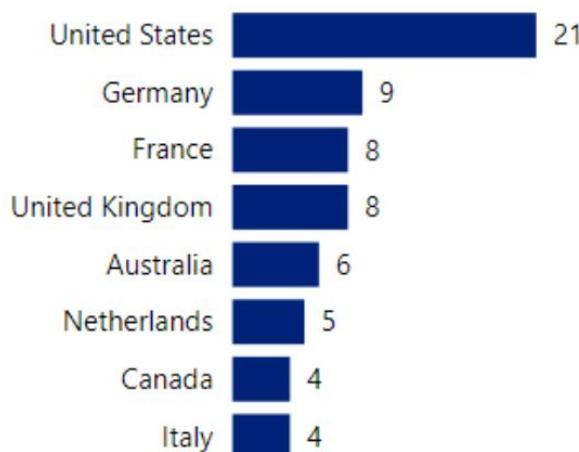
1. Optimize Store Capacity and Distribution

- Expand High-Demand Stores: Increase the capacity of stores in high-demand areas, particularly in regions like North America, which shows the highest revenue across all categories.

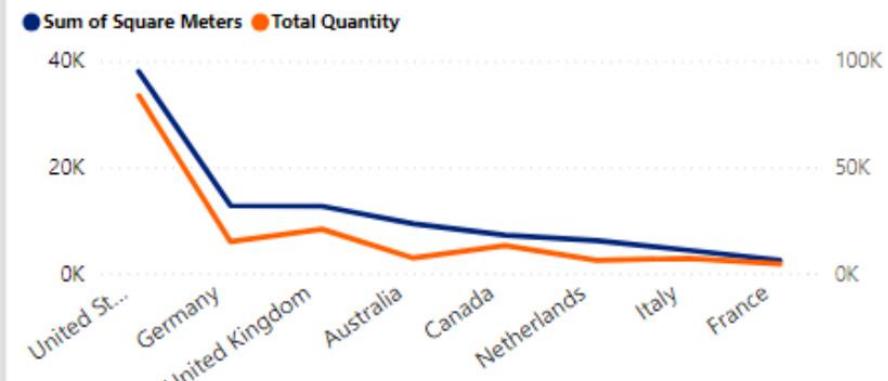


Address Declining Regions: Focus on regions like Germany, Australia, and the Netherlands, where there is a decline in quantity sold compared to store volume. Investigate and address the reasons for this decline.

which Country Has More Stores ?

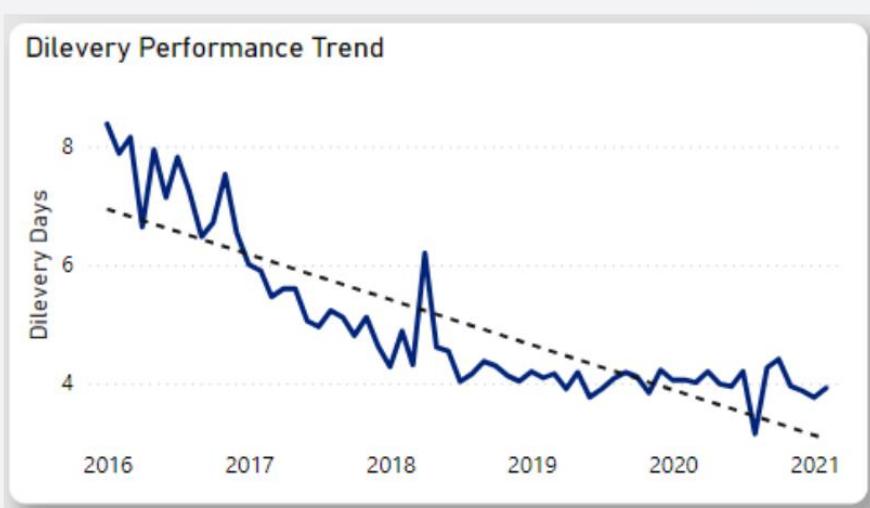


Store Size vs. Quantity Sold Comparison



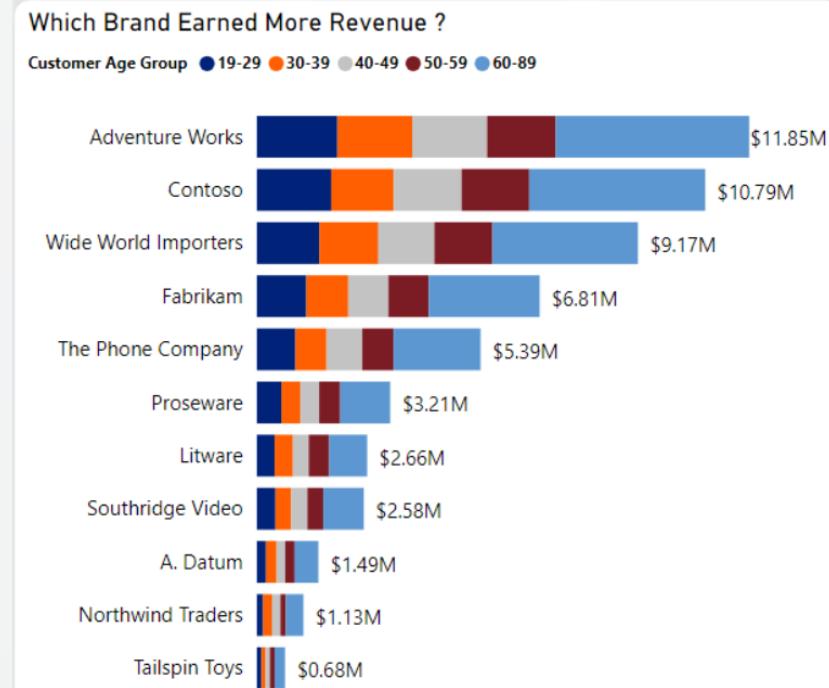
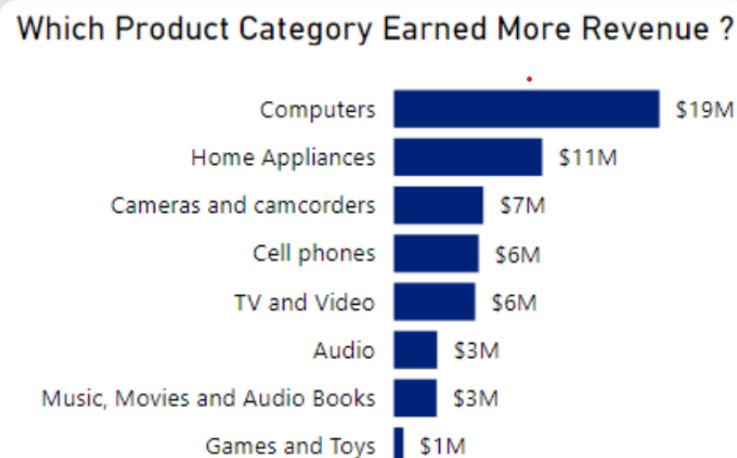
2. Improve Delivery Performance

- Efficiency Improvements: The downward trend in delivery time from 2016 to 2021 indicates a need for optimizing delivery routes and improving logistics. Implement strategies to reduce delivery times and enhance efficiency.
- Regular Maintenance: Ensure regular maintenance of delivery vehicles to prevent delays and improve reliability.



3. Leverage Product and Brand Performance

- Promote Top Performers: Focus on promoting and expanding the best-selling products and brands, such as "Adventure Works," which has the highest revenue.
- Rebrand or Discontinue Underperformers: Investigate products and brands with lower sales, such as "Tailspin Toys," and consider rebranding or discontinuing them.



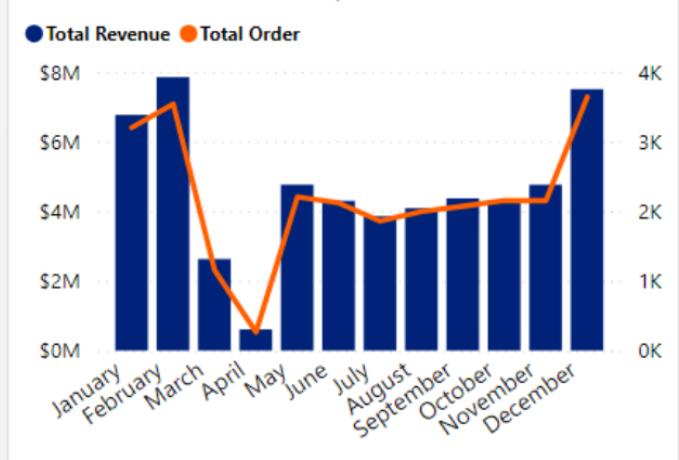
4. Seasonal and Trend Analysis

- Maximize Peak Months: Focus on maximizing sales during peak months like December, January, and February.
- Mitigate Declines: Investigate the reasons for sharp declines in specific months, such as April, and develop strategies to mitigate them.
- Optimize Marketing Strategies: Leverage the positive correlation between revenue and orders to optimize marketing and sales strategies. Ensure that marketing efforts are aligned with periods of high order volumes.

Revenue Trend Drilled Down To Months

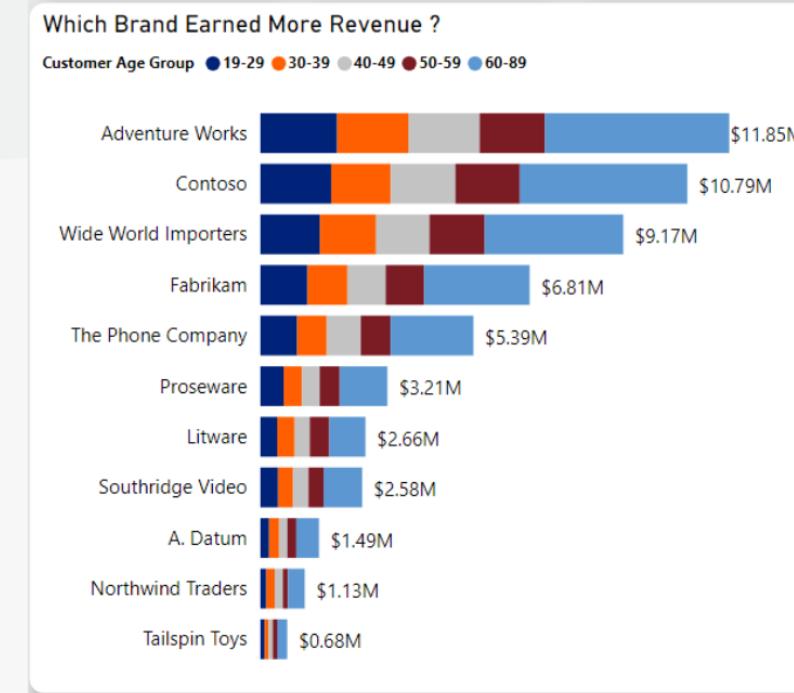
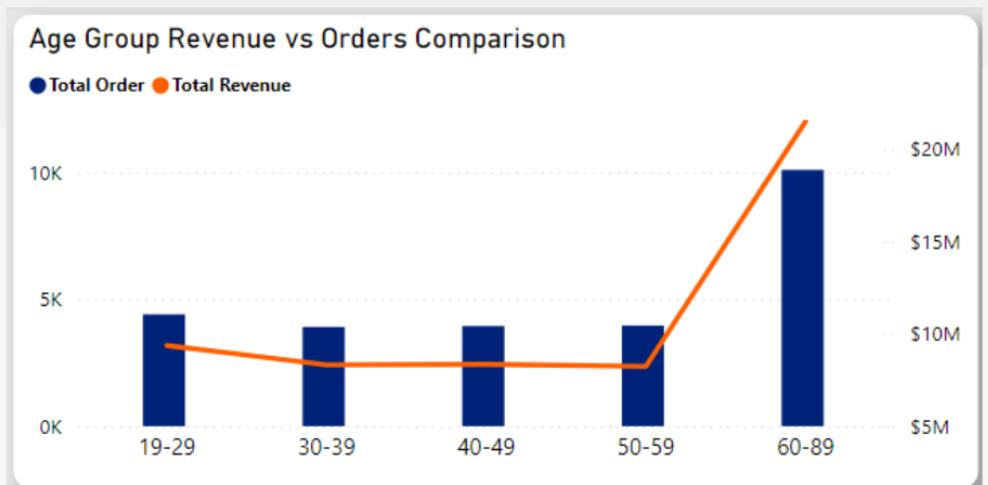


Revenue vs. Order Comparison



5. Customer Demographics

- Target Key Age Groups: Focus on the age group 60-89, which has the major part of revenue across all brands. Tailor your marketing strategies to cater to this demographic.



End of Presentation

Thank you