Business Analysis Report

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Executive Summary

This report delves into a critical analysis of an online retail superstore that caters to countries worldwide and has a wide customer reach. The information provided in the dataset has been used to analyze the retail superstore in five different aspects, which has been used to gain key insight into the overall performance of the superstore both financially and non-financially. The analysis carried out focuses on these key aspects;

- An overview of the company across all markets in terms of profitability and market share.
- Analysis of the Canadian market environment which is the least profitable market and performance breakdown by state.
- Focus on customer retention and regional demand for goods, we also look at the sales forecast across all market segments and identification of any seasonal trends in consumer purchasing of goods.
- Investigation into the efficiency of shipments across all markets and the effective costs of shipping concerning the mode of shipment and shipping class.
- Analysis of the products sold with regard to consumer demand and profitability of the goods sold. We also focus on the addition of products to existing product ranges.

Descriptive and predictive statistical analysis has been used throughout the analysis carried out to evaluate key performance indicators as well as forecast indicators. Recommendations have been made at the end of the report in order to minimize inefficiencies, preserve current standards, or improve current levels of performance.

Introduction

The dataset provided for analysis covers the years 2018-2021, the information provided has been used to gain insight into company performance from both financial and non-financial perspectives.

Assumptions used while carrying out the analysis;

- The 'Order Date' variable from the dataset has been used for trend analysis and predictive analysis to create forecasts.
- 'Product ID' and 'Customer ID' were used to identify new and existing customers and products in the market.
- An assumption made when analyzing the efficiency of shipment about the estimated time to be taken for shipment,

Ship Mode	Estimated time to ship
Same Day	0 days
First Class	3 days
Second Class	3 days
Standard Class	5 days

The order is presumed to be late if shipping time exceeds the estimated time to ship, early if it was less, and shipped on time if the actual time taken to ship is the same as the estimated time. We have assumed that first-class shipments and second-class shipments take the same estimated shipping time but differ in terms of facilities offered concerning the mode of shipment. E.g.: Security, insurance, high-quality packaging, etc.

KEY FINDINGS & ANALYSIS

Market Overview

Profitability Analysis On All Markets
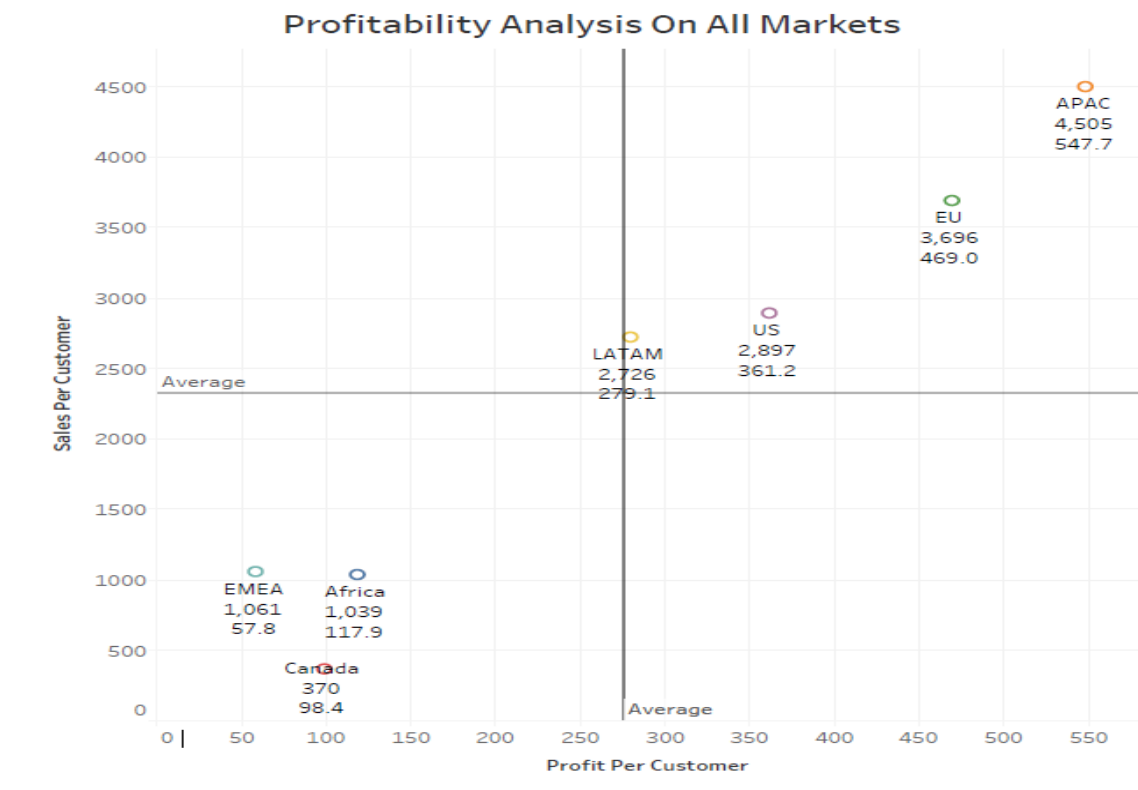
The APAC market has the highest sales per customer and profit per customer and is well above average as shown in the diagram above. Next, we see the EU and US, however, the LATAM market is marginally above average for sales and profit. Canadian market contributes the least amount of profit and sales.

Market Share
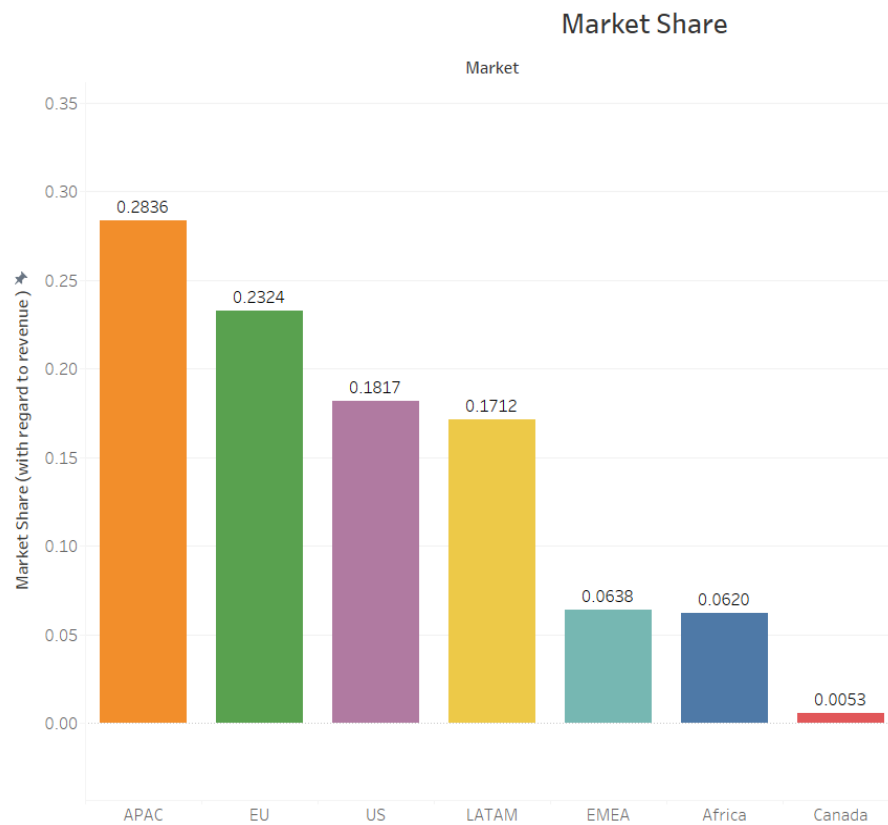
Market

The APAC market has the highest market share of 28.6% and the Canadian market has 5.3%, market share has been calculated using revenue generated as the base.

Customer Base

Market	Distinct count of Customer ID	Quanitity Sold Per Customer	Discount Per Customer	Sales
Africa	754	14.01	0.953	783,773
APAC	796	51.79	2.057	3,585,744
Canada	181	4.60	0.000	66,928
EMEA	760	15.15	1.298	806,161
EU	795	47.51	1.297	2,938,089
LATAM	794	48.52	1.757	2,164,605
US	793	47.76	1.969	2,297,201
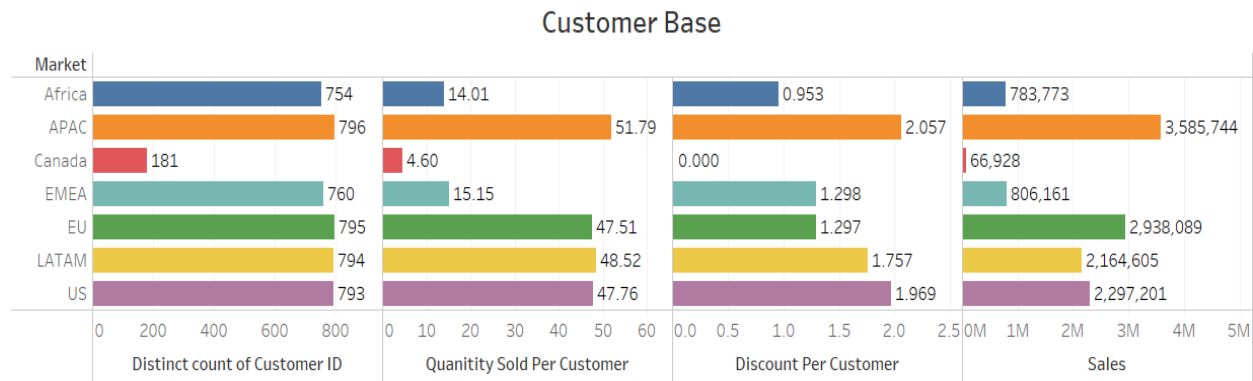
The APAC market has the highest number of distinct customers and the highest quantity sold per customer, this could be due to the high discount per customer offering in the APAC market when compared to other markets. The EU market has an almost similar number of customers as the US and LATAM markets but can generate higher sales with a lower discount per customer.

Market Demand

Category	Africa	APAC	Canada	EMEA	EU	LATAM	US	Grand Total
Furniture	631	2,429	42	770	1,501	2,382	2,121	9,876
Office Supplies	3,045	6,177	277	3,297	6,589	5,862	6,026	31,273
Technology	911	2,396	65	962	1,910	2,050	1,847	10,141
Grand Total	4,587	11,002	384	5,029	10,000	10,294	9,994	51,290

Office supplies are approximately 61% of total orders with the most demand from the EU. The APAC market has the most orders and this could be due to the high customer base as shown in the previous diagram. Canada has the least order count but this is with no discount offered in the market.

CANADIAN MARKET ANALYSIS

Sales By State				
State	Profit	Sales	Quantity	Distinct count ..
Ontario	9,080	35,450	476	95
Quebec	2,961	10,924	117	31
British Columbia	2,695	9,544	91	24
Alberta	1,964	6,551	90	23
Manitoba	662	2,018	25	10
Saskatchewan	405	1,956	24	8
Nova Scotia	41	382	8	3
Newfoundland	9	103	2	1
Grand Total	17,817	66,928	833	181

Ontario generates the most sales, and quantity sold and has the highest customer base but it is not doe shave the highest profit-to-sales ratio, Manitoba has a profit/sales ratio of 32.83% and Ontario has 25.61%. Manitoba shows potential for increased profitability than all other states. Newfoundland is the worst-performing state across all aspects.

Most Profitable Product Category

TOP 10 Sub-Categories That Contribute To Company Profit
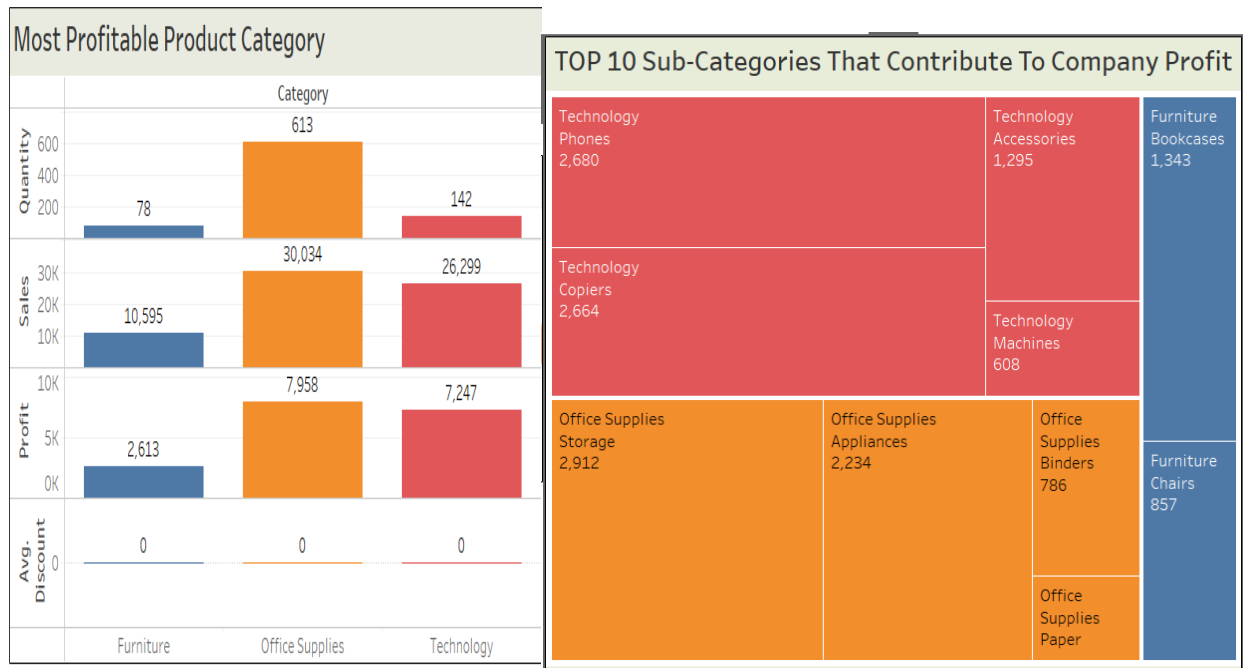
Office supplies have the highest sales and quantity sold in Canada, however, technology has a profit/sales ratio of 28.2%, and office supplies have 26.5%. When we look at the top ten sub-categories that contribute to profit technology dominates with phones contributing the most profit in Canada. We can also see that no discounts have been offered for any category of products, this is a valid reason to claim poor sales in Canada when compared to other markets.

Contribution to profit

We can see across all market segments Canada has the worst performance in terms of profit generated however, as mentioned earlier a lack of discounts offered in Canada is most likely to be the contributing factor to the lack of sales. Collectively Canada contributes approximately 3.55% to total profit which is highly insignificant.

Customer Analysis

Yearwise New and Repeat Customers

New_Existing_Customer / Order Date

| New Customer | Repeat Customer |
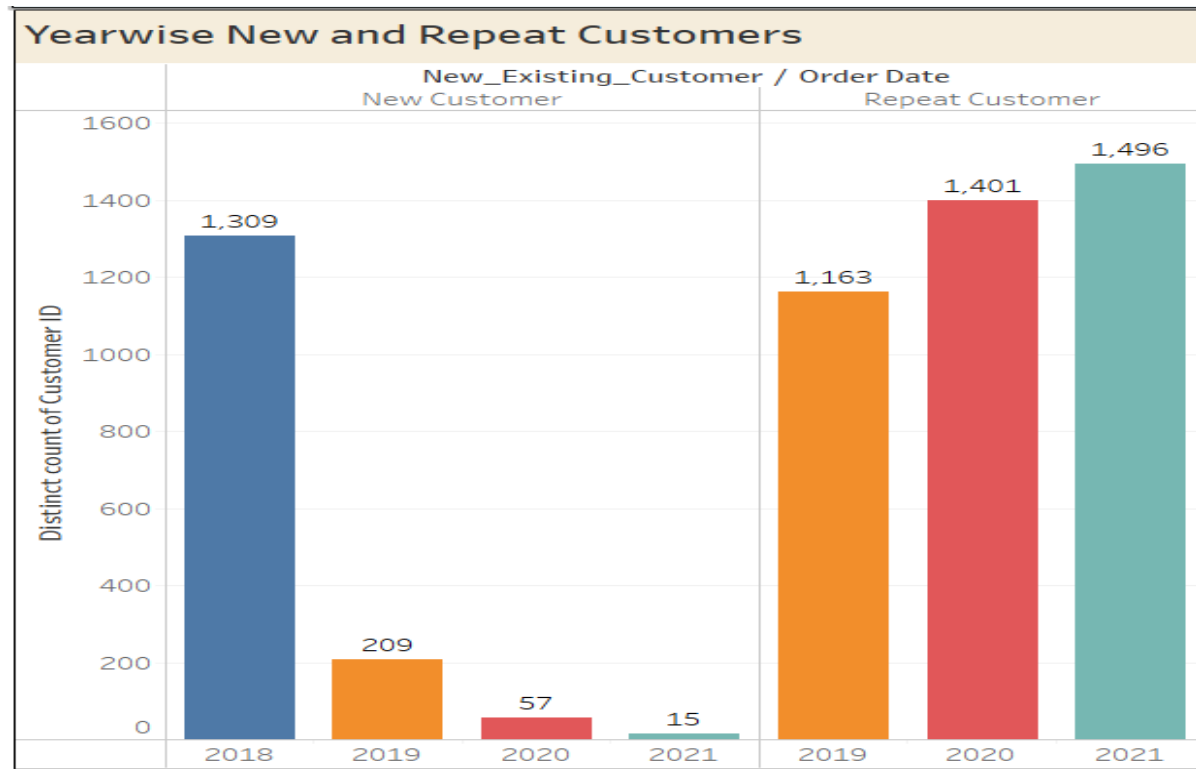
All customers in 2018 are considered new customers as the dataset beings in 2018, however, we can see that year by year the number of new customers is dropping drastically whilst repeat customers is increasing yearly which indicates customer satisfaction and retention but the drop in new customers signifies a lack of marketing and promotion.

SALES FORECAST FOR DIFFERENT CUSTOMER SEGMENTS

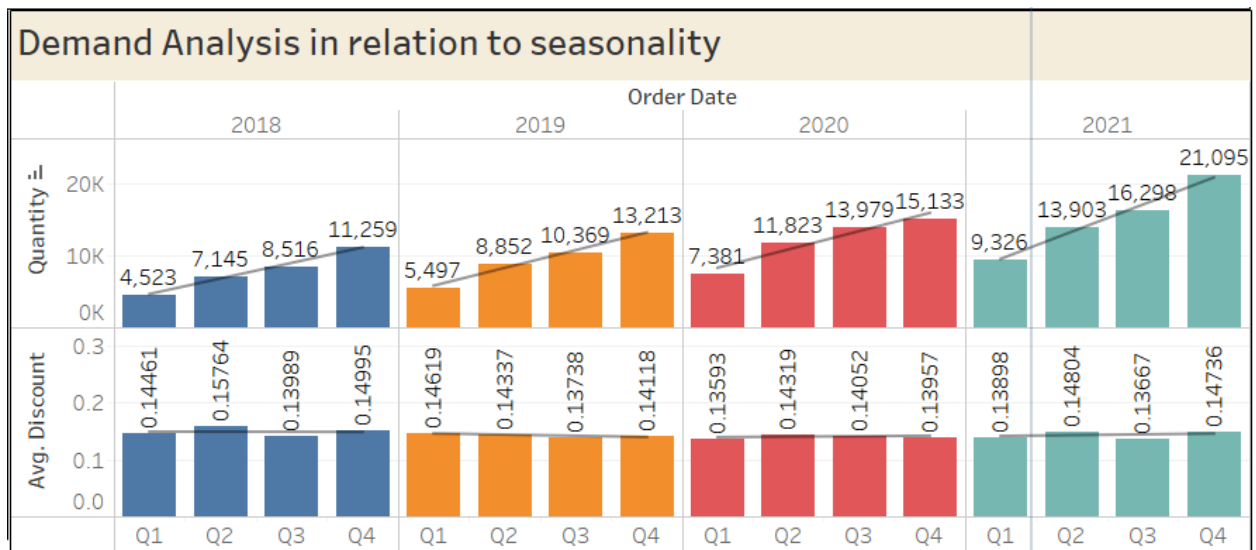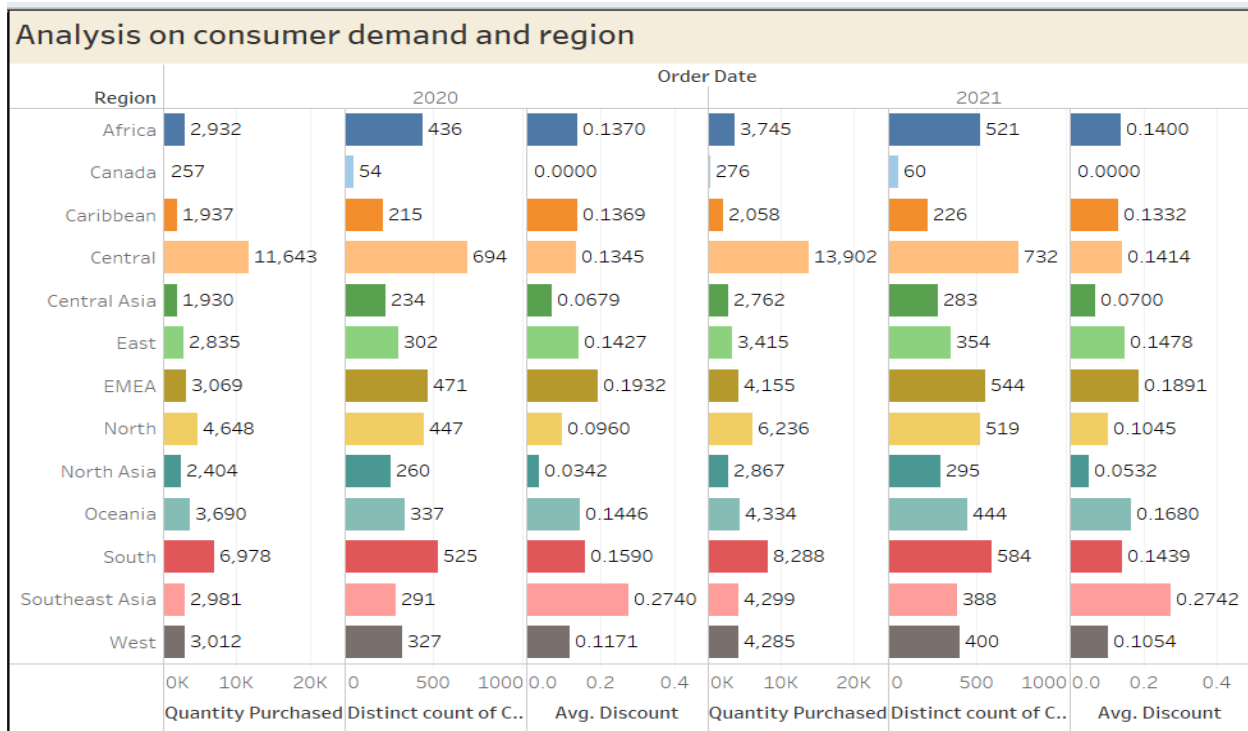| Segment	Order Date

Consumer — Sales: 1,173,671 · 1,459,663 · 1,733,352 · 1,989,934 · 2,235,551

Corporate — Sales: 691,663 · 769,146 · 1,070,287 · 1,259,058 · 1,470,116

Home Office — Sales: 394,117 · 437,960 · 612,776 · 842,726 · 1,139,231

2018 · 2019 · 2020 · 2021 · 2022
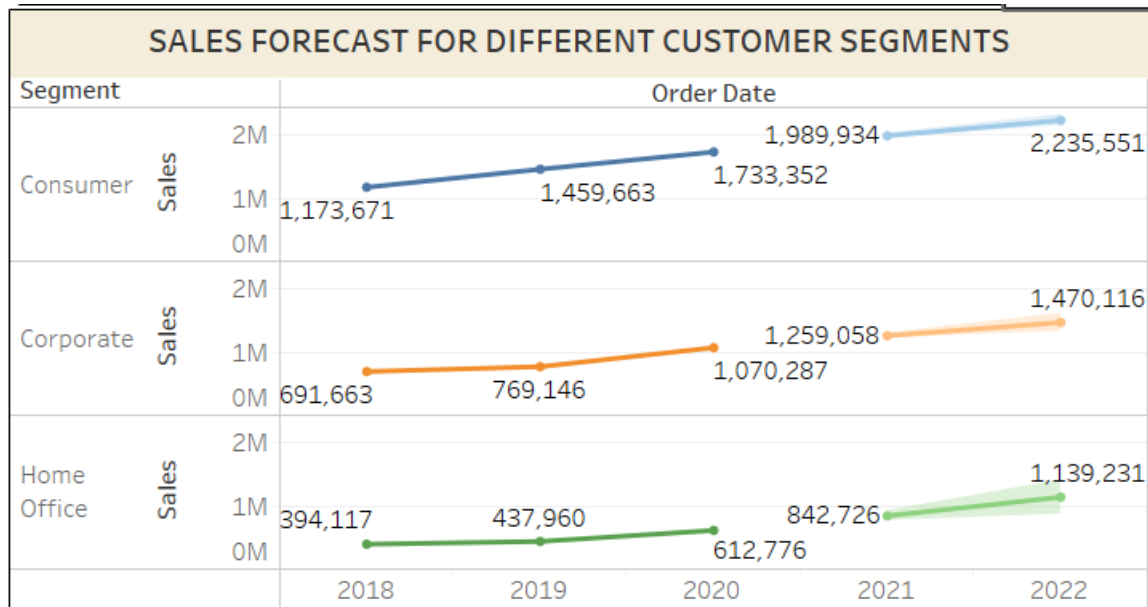
Forecasted values have been shown for 2021 and 2022 sales, however, the 2021 actual sales value is available (appendix-figure1) and when compared to the forecasted estimate we have generated more sales which is a positive for our company. We see an upward trend that continues through 2022 which is a boost in morale for our company given that current market conditions prevail stable.

Demand Analysis in relation to seasonality

Order Date

| 2018 | 2019 | 2020 | 2021 |

Quantity:
- 2018: Q1 4,523 · Q2 7,145 · Q3 8,516 · Q4 11,259
- 2019: Q1 5,497 · Q2 8,852 · Q3 10,369 · Q4 13,213
- 2020: Q1 7,381 · Q2 11,823 · Q3 13,979 · Q4 15,133
- 2021: Q1 9,326 · Q2 13,903 · Q3 16,298 · Q4 21,095

Avg. Discount:
- 2018: Q1 0.14461 · Q2 0.15764 · Q3 0.13989 · Q4 0.14995
- 2019: Q1 0.14619 · Q2 0.14337 · Q3 0.13738 · Q4 0.14118
- 2020: Q1 0.13593 · Q2 0.14319 · Q3 0.14052 · Q4 0.13957
- 2021: Q1 0.13898 · Q2 0.14804 · Q3 0.13667 · Q4 0.14736

We can see a seasonality aspect in demand where demand is highest in the 4th quarter and this is probably due to the holiday season. There isn't much fluctuation in discounts offered throughout the year.

Analysis on consumer demand and region

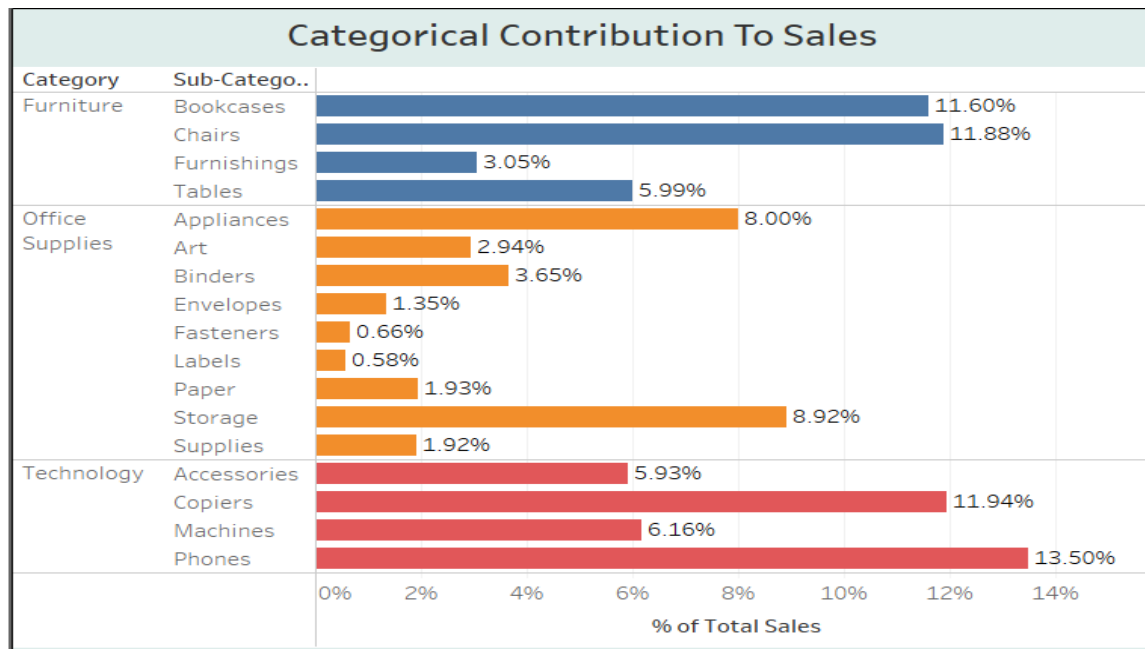| Region	2020 Quantity Purchased	2020 Distinct count of C..	2020 Avg. Discount	2021 Quantity Purchased	2021 Distinct count of C..	2021 Avg. Discount
Africa	2,932	436	0.1370	3,745	521	0.1400
Canada	257	54	0.0000	276	60	0.0000
Caribbean	1,937	215	0.1369	2,058	226	0.1332
Central	11,643	694	0.1345	13,902	732	0.1414
Central Asia	1,930	234	0.0679	2,762	283	0.0700
East	2,835	302	0.1427	3,415	354	0.1478
EMEA	3,069	471	0.1932	4,155	544	0.1891
North	4,648	447	0.0960	6,236	519	0.1045
North Asia	2,404	260	0.0342	2,867	295	0.0532
Oceania	3,690	337	0.1446	4,334	444	0.1680
South	6,978	525	0.1590	8,288	584	0.1439
Southeast Asia	2,981	291	0.2740	4,299	388	0.2742
West	3,012	327	0.1171	4,285	400	0.1054

The central region has the highest quantity purchased over the last two years although the most discount was offered in Southeast Asia which comes second in the least quantity sold. However, the central region has the highest number of customers and that is a contributing factor to the high quantity sold.

Product Analysis

New & Existing Product Analysis
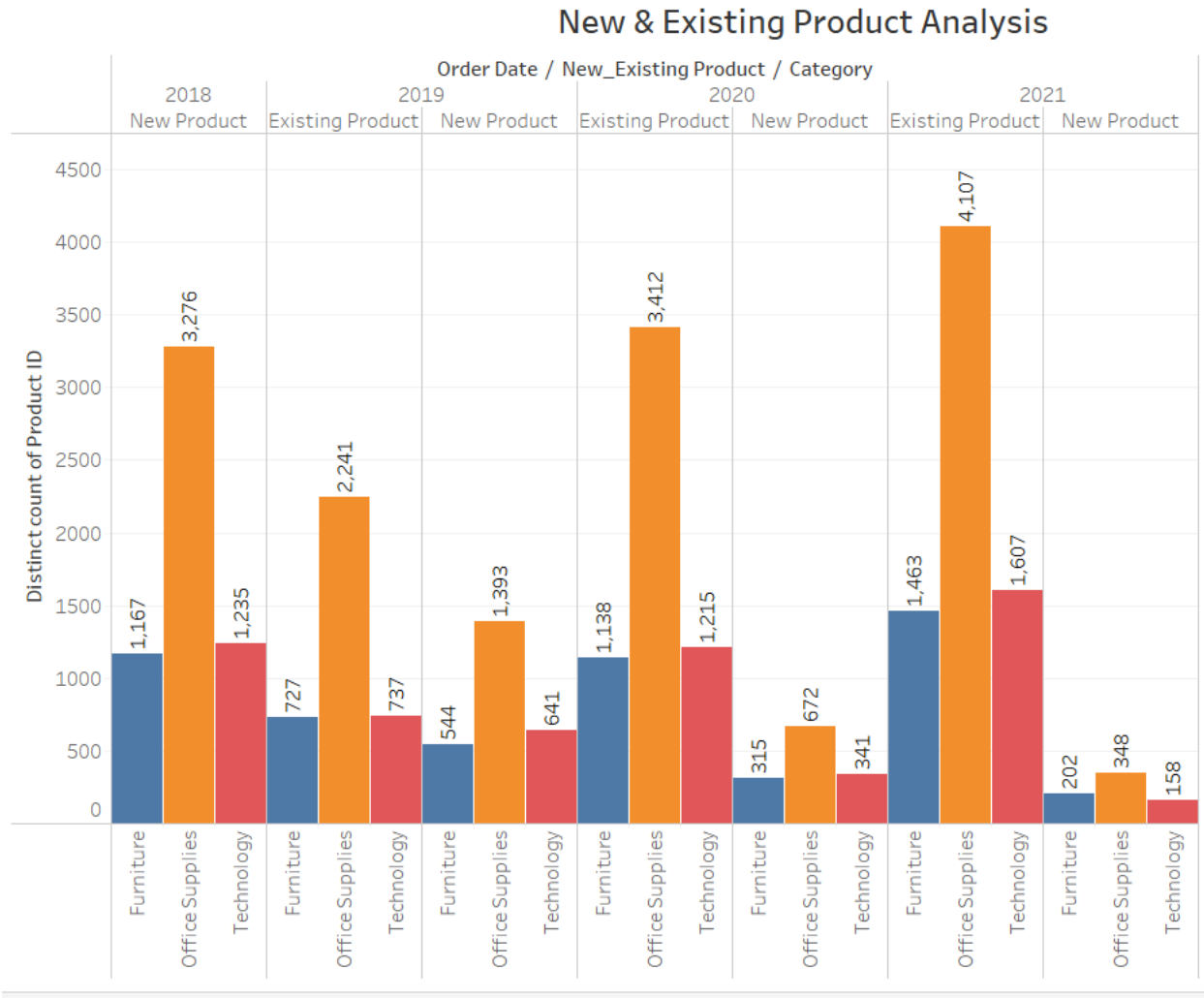
Products in 2018 are considered new as our dataset begins in 2018 therefore for analysis, we start from 2019. The number of new products added drops year by year across all categories and the existing products keep increasing, this can create dissatisfaction among loyal customers as they are exposed to a smaller range of goods each year. This is most likely a contributing factor to the drop in new customers as mentioned under customer analysis.

Categorical Contribution To Sales

Category	Sub-Catego..	% of Total Sales
Furniture	Bookcases	11.60%
	Chairs	11.88%
	Furnishings	3.05%
	Tables	5.99%
Office Supplies	Appliances	8.00%
	Art	2.94%
	Binders	3.65%
	Envelopes	1.35%
	Fasteners	0.66%
	Labels	0.58%
	Paper	1.93%
	Storage	8.92%
	Supplies	1.92%
Technology	Accessories	5.93%
	Copiers	11.94%
	Machines	6.16%
	Phones	13.50%

Technology is the highest contributing category to sales with approximately 38% and the highest contributing sub-category to sales is phones with approximately 13.5%. Technology subcategories are both the most profitable as well as the most loss-making products as shown below,

Most Profitable And Least Profitable Products (Top 10 & Worst 10)

Category	Product Name	
Furniture	Sauder Classic Bookcase, Traditional	10,672
	Harbour Creations Executive Leather Armchair, Adjustable	10,427
	Lesro Training Table, Rectangular	-2,581
	Bevis Wood Table, with Bottom Storage	-2,783
	Chromcraft Bull-Nose Wood Oval Conference Tables & Bases	-2,876
	Bevis Computer Table, Fully Assembled	-3,510
	Bevis Round Table, Adjustable Height	-3,650
Office Supplies	Hoover Stove, Red	11,808
	Rogers Lockers, Blue	-2,893
Technology	Canon imageCLASS 2200 Advanced Copier	25,200
	Cisco Smart Phone, Full Size	17,239
	Motorola Smart Phone, Full Size	17,027
	Nokia Smart Phone, Full Size	9,938
	Cisco Smart Phone, with Caller ID	9,787
	Nokia Smart Phone, with Caller ID	9,465
	Belkin Router, USB	8,955
	Cubify CubeX 3D Printer Triple Head Print	-3,840
	Motorola Smart Phone, Cordless	-4,447
	Lexmark MX611dhe Monochrome Laser Printer	-4,590
	Cubify CubeX 3D Printer Double Head Print	-8,880

**Relationship Between Quantity Sold And Discount Given**
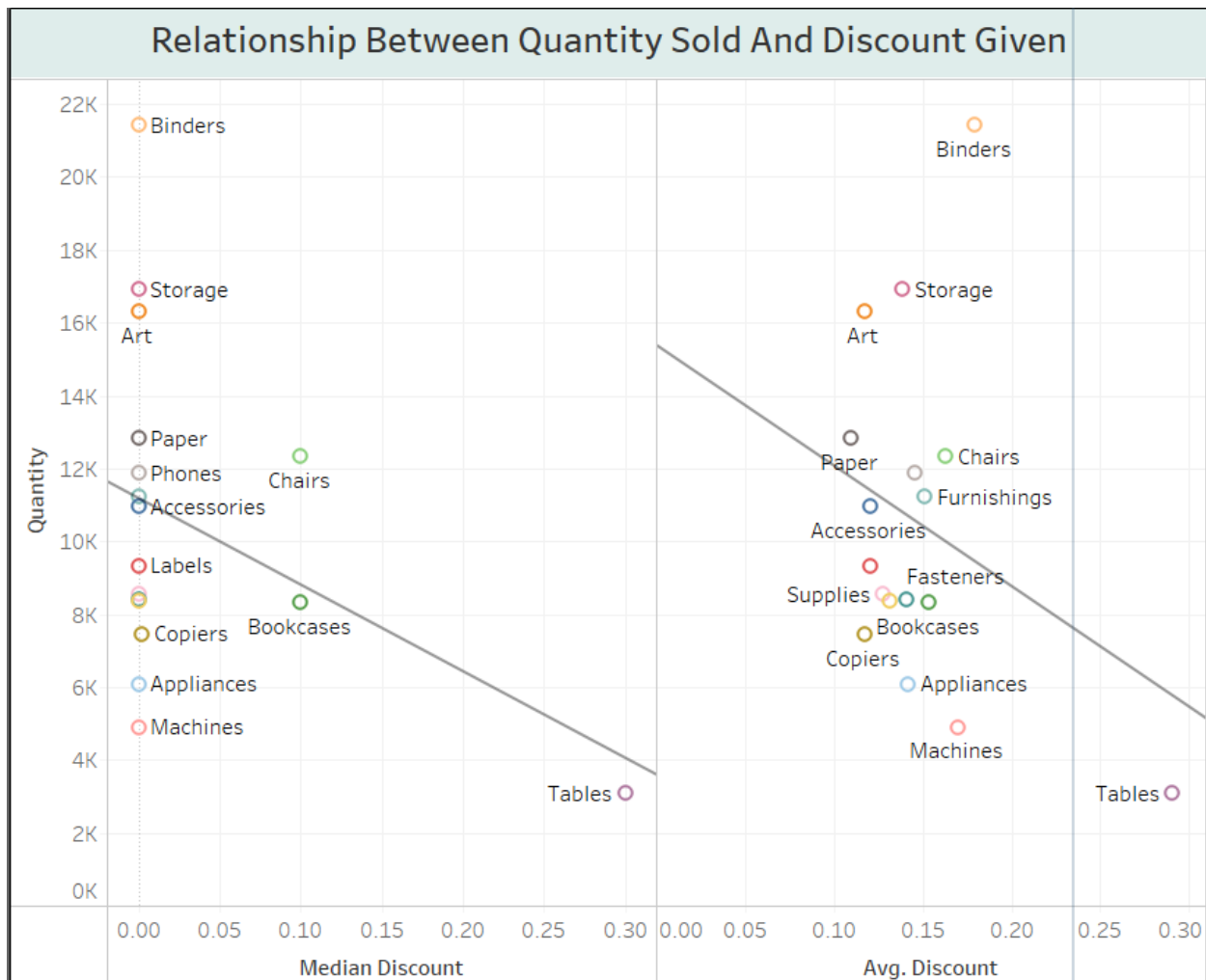
There is no linear relationship between the quantity purchased and the discounts offered to customers, we use the median discount in addition to the average discount as averages can be manipulated by extreme outliers in data. The discount strategy in place is not efficient to generate sales.
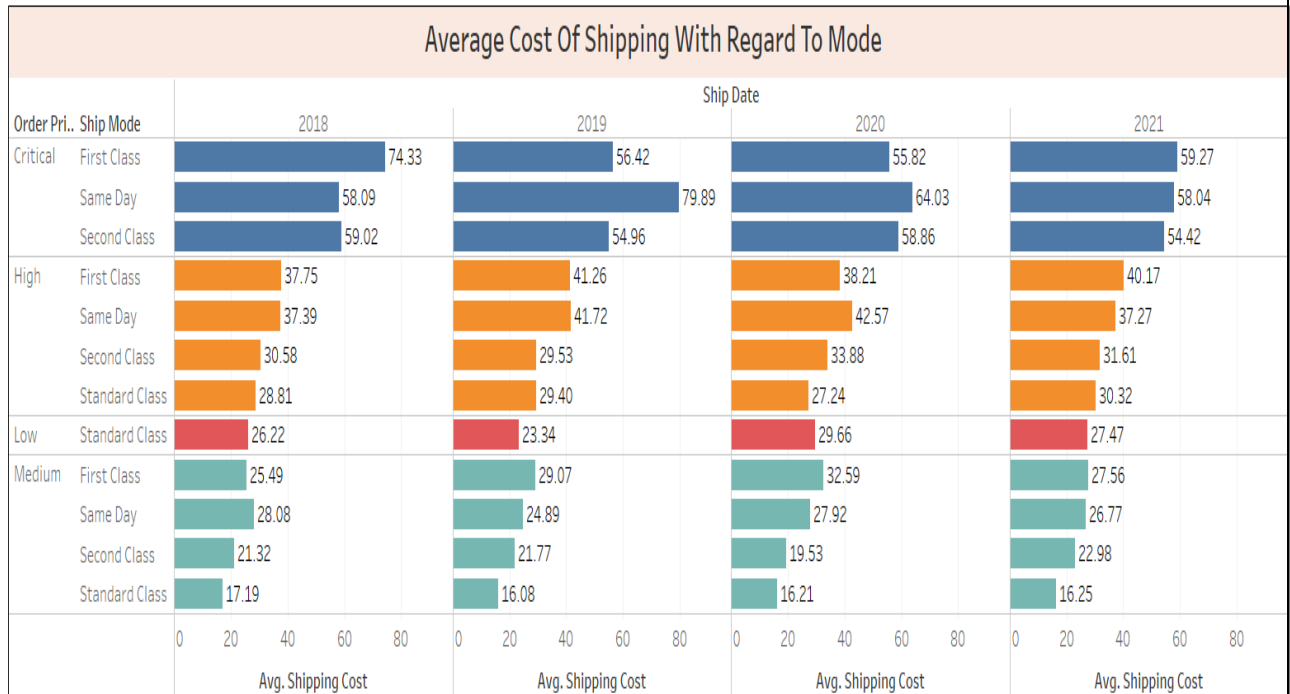
Shipment Analysis

Efficiency & Order Priority

Ship Status	Critical	High	Low	Medium	Grand To..
Early	2,135	9,369		9,513	21,017
Late	19	1,270	2,424	9,892	13,605
On Time	1,778	4,862		10,028	16,668
Grand Total	3,932	15,501	2,424	29,433	51,290

73% percent of all orders were shipped early or on time. We also see that some critical orders and high priority were shipped late given that they pay higher amounts on average for shipping this will most likely cause discomfort among customers, we also see that all low-priority orders are late creating a standard that all low priority customers should expect their shipment late which will not create a favorable image for the company.

Shipping Status With Regard To Mode Of Shipment
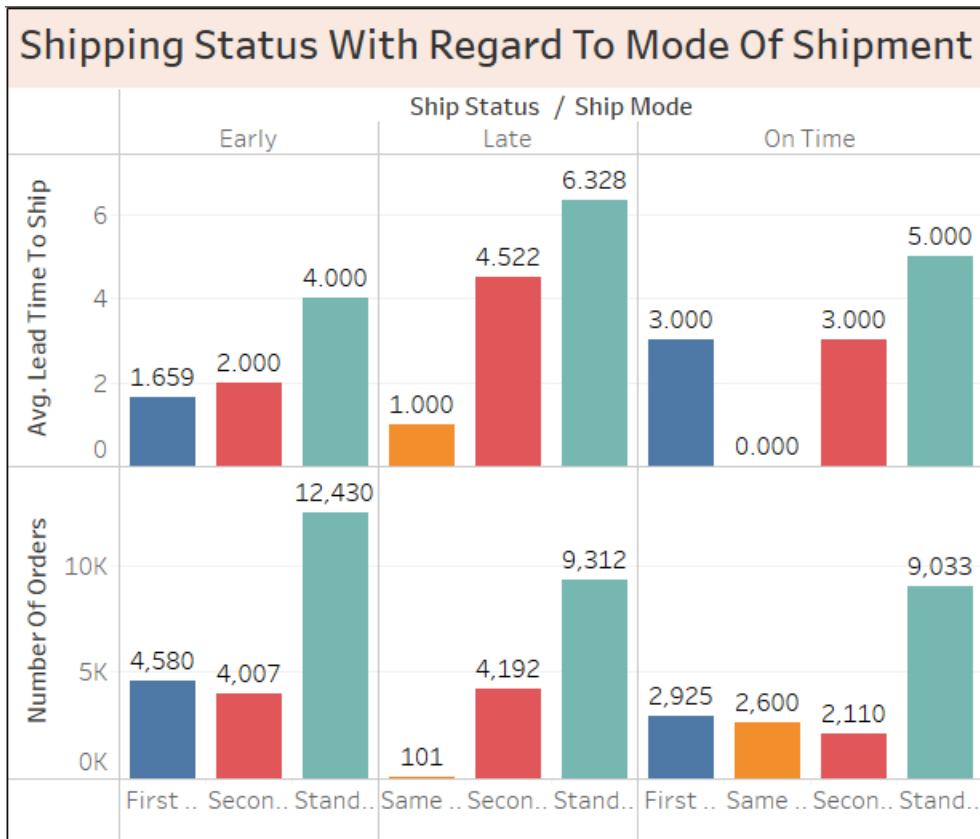
All first-class orders were shipped early or on time, however, we see same-day orders being late which goes against the principle of same-day orders. There is no priority concerning the mode of shipment even though same day costs more than second class and standard class.

Average Cost Of Shipping With Regard To Mode

Order Pri..	Ship Mode	2018	2019	2020	2021
Critical	First Class	74.33	56.42	55.82	59.27
	Same Day	58.09	79.89	64.03	58.04
	Second Class	59.02	54.96	58.86	54.42
High	First Class	37.75	41.26	38.21	40.17
	Same Day	37.39	41.72	42.57	37.27
	Second Class	30.58	29.53	33.88	31.61
	Standard Class	28.81	29.40	27.24	30.32
Low	Standard Class	26.22	23.34	29.66	27.47
Medium	First Class	25.49	29.07	32.59	27.56
	Same Day	28.08	24.89	27.92	26.77
	Second Class	21.32	21.77	19.53	22.98
	Standard Class	17.19	16.08	16.21	16.25

Avg. Shipping Cost

 Some shipment modes under medium priority seem to be cheaper than low order priority, customers may be taking advantage of facilities with our knowledge, but the costing approach taken has to be re-evaluated.
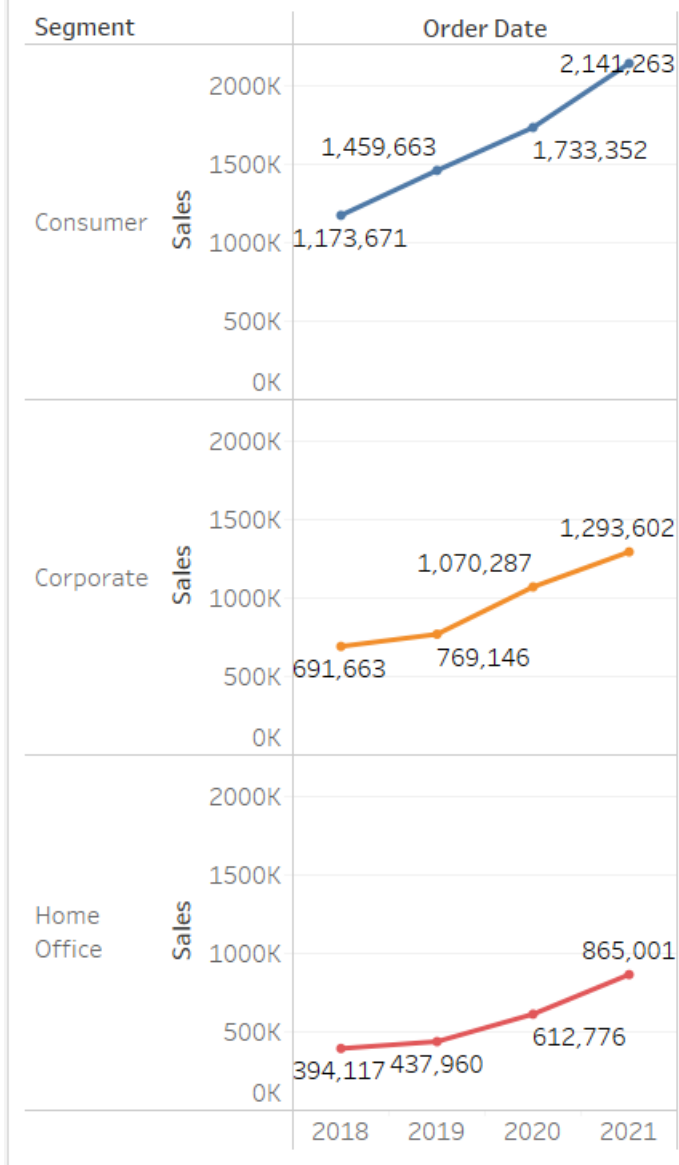
Recommendations & Conclusion

> ➢ The Retail superstore is in a stable state with good potential for business growth, however, the analysis carried out does highlight areas that need improving such as outbound logistics, inventory management, cost management, etc. Recommendations have been made accordingly,

- Approximately 27% of shipments are made late and some of these are critical and high-priority orders. I suggest that preference for shipment should be based on order priority and mode of shipment selected, for example, critical priority first class orders should be given the highest preference because these customers pay high shipping costs.

- Lack of efficiency in shipment can also be due to a lack of training of employees concerning logistics and inventory management, training must be provided alongside skill development programs. Outsourcing of shipment can also be considered given its importance.

- Improving levels of customer retention each year, therefore existing levels of productivity must be preserved if not improved, however, with the number of new customers dropping this outlines slack in marketing, therefore, we must also take initiatives concerning marketing and promotion such as gift vouchers e-coupons, social media, etc. There is a seasonality effect on demand, we can take advantage of this by improved inventory management and promotion.

- The discount strategy followed by the company is not effective as there is no linear relationship between discounts given and the quantity purchased, therefore restructuring the discount strategy is essential. For example, we could provide discounts based on the quantity purchased or through a customer loyalty program where discounts are offered based on repeat purchases.

- Cost allocation of shipping must be reevaluated as mentioned earlier medium priority was found to be cheaper than low order priority under some shipment modes, we cannot let customers take advantage of this information.

- The Canadian market has the highest sales/profit ratio of 26.6% showing potential for business growth, a reason for the low sales in Canada could be due to no discounts offered. Discounts need to be offered in Canada.

- Competition faced in Canada may also be a reason for low sales and profits, therefore strategic monitoring is required.

- There is a drop in the introduction of new products each year, this limits existing customers to a smaller range of products each year and therefore negatively impacts customer conversion as well as customer satisfaction. This can be remedied by substituting low-demand loss-making products and introducing diversified products that will spark demand.

Appendix

Sales For Different Customer Segments

Segment	Order Date

Consumer
- 1,173,671
- 1,459,663
- 1,733,352
- 2,141,263

Corporate
- 691,663
- 769,146
- 1,070,287
- 1,293,602

Home Office
- 394,117
- 437,960
- 612,776
- 865,001

2018 2019 2020 2021

(Figure_1)