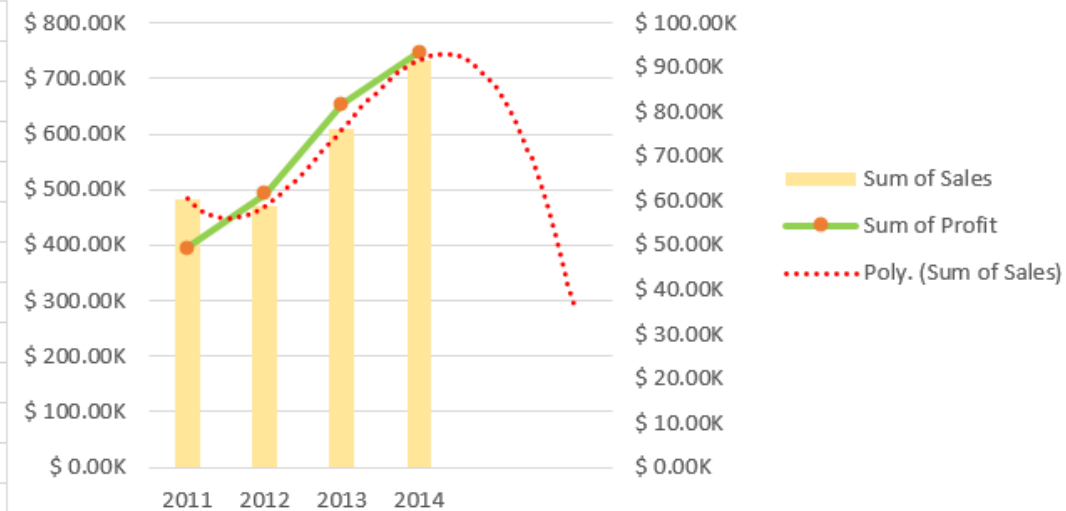


(1) What is the historical trend of total sales and profit for each year, and what is the predicted total sales and profit for the upcoming year?

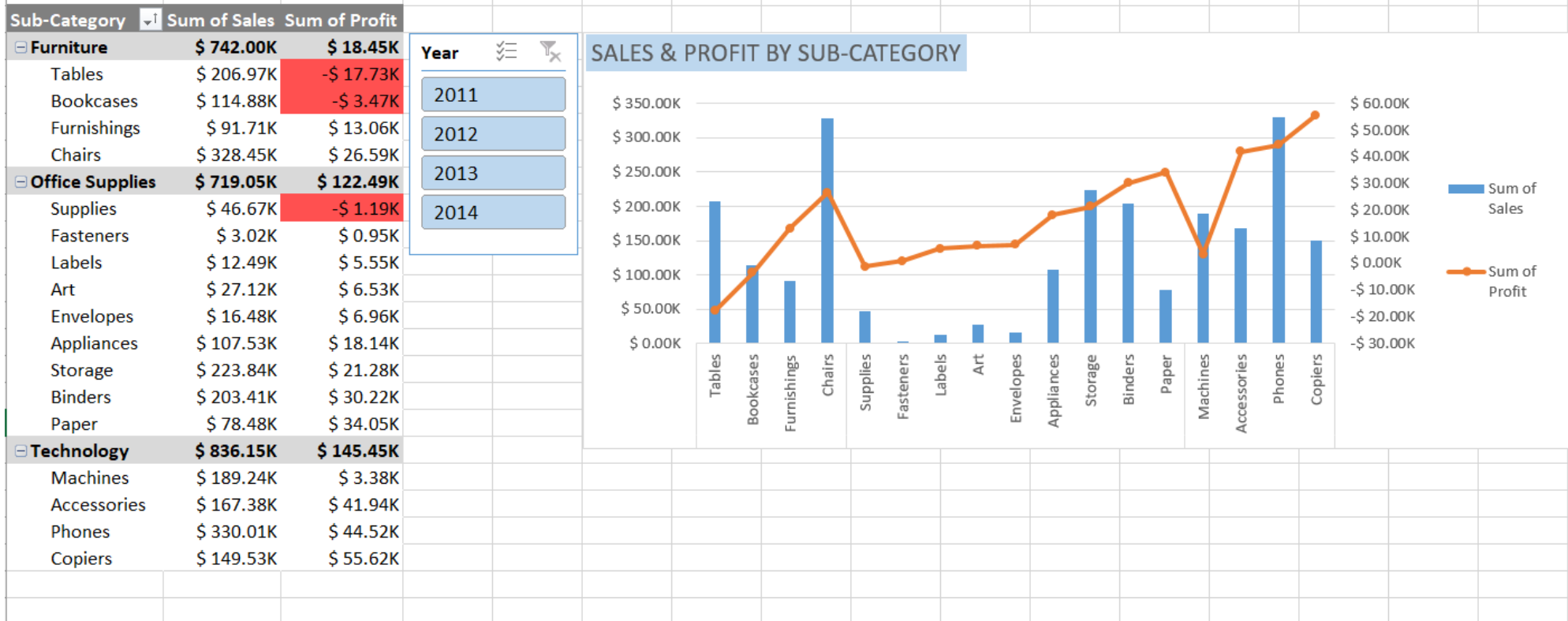
Year Name ▾	Sum of Sales	Sum of Profit
2011	\$ 484.25K	\$ 49.54K
2012	\$ 470.53K	\$ 61.62K
2013	\$ 608.47K	\$ 81.73K
2014	\$ 733.95K	\$ 93.51K
Grand Total	\$ 2297.20K	\$ 286.40K

TOTAL SALES AND PROFIT BY MONTH



The polynomial trend line model fits the data perfectly with an R-squared value of 1. However, the projected sales for the upcoming year are downward. Further analysis is needed to understand the reasons behind this trend and potential actions can be taken to mitigate the impact on revenue and profit.

(2) Can you explain the reasons behind the projected downward trend in sales and profit? How have you utilized data analysis to determine these factors?



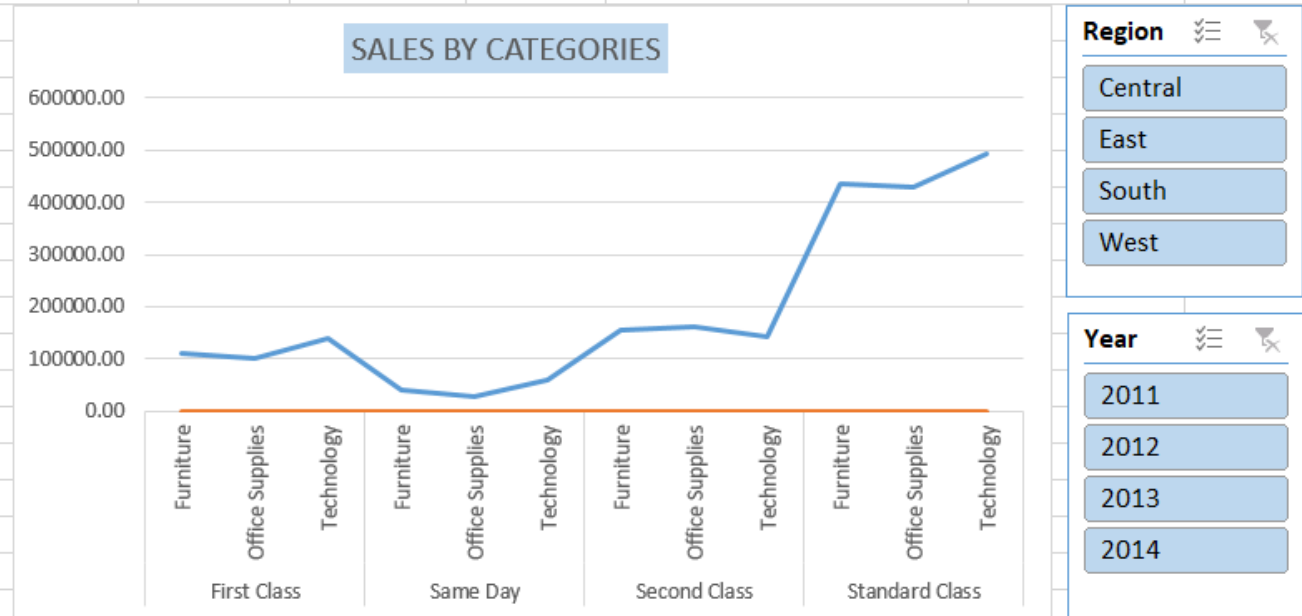
the company may want to consider the following strategies to avoid the downward trend in sales and profit:

(1)Sub-category performance: Some sub-categories like Tables and Bookcases seem to have negative total profit, while others like Chairs, Furnishings and Appliances have positive total profit. Understanding the reasons behind the performance of these sub-categories and making necessary adjustments to improve the performance of the underperforming sub-categories could positively impact overall sales and profit.

(2)Profit Margin: Additionally, the data shows that sub-categories with high sales volume such as tables and bookcases have negative profit. The company could potentially adjust the profit margins or decrease discounts on these sub-categories to mitigate the impact on overall profit. the company can address these issues, such as removing sub-categories with negative sales and profit, adjusting pricing, expanding into new markets, or enhancing the company's product offerings.

(3) How does the shipment time impact the sales and customer satisfaction for different ship modes and can you suggest any optimization strategies to improve the shipment time while maintaining the cost-effectiveness?

Ship with category	Average Shipment Day	Sum of Sales
First Class	2.18	351428.42
Furniture	2.14	\$ 110.73K
Office Supplies	2.20	\$ 101.33K
Technology	2.16	\$ 139.37K
Same Day	0.04	\$ 128.36K
Furniture	0.03	\$ 39.15K
Office Supplies	0.05	\$ 29.09K
Technology	0.05	\$ 60.12K
Second Class	3.24	\$ 459.19K
Furniture	3.26	\$ 156.29K
Office Supplies	3.22	\$ 160.68K
Technology	3.28	\$ 142.22K
Standard Class	5.01	\$ 1358.22K
Furniture	4.98	\$ 435.83K
Office Supplies	5.02	\$ 427.94K
Technology	4.98	\$ 494.44K



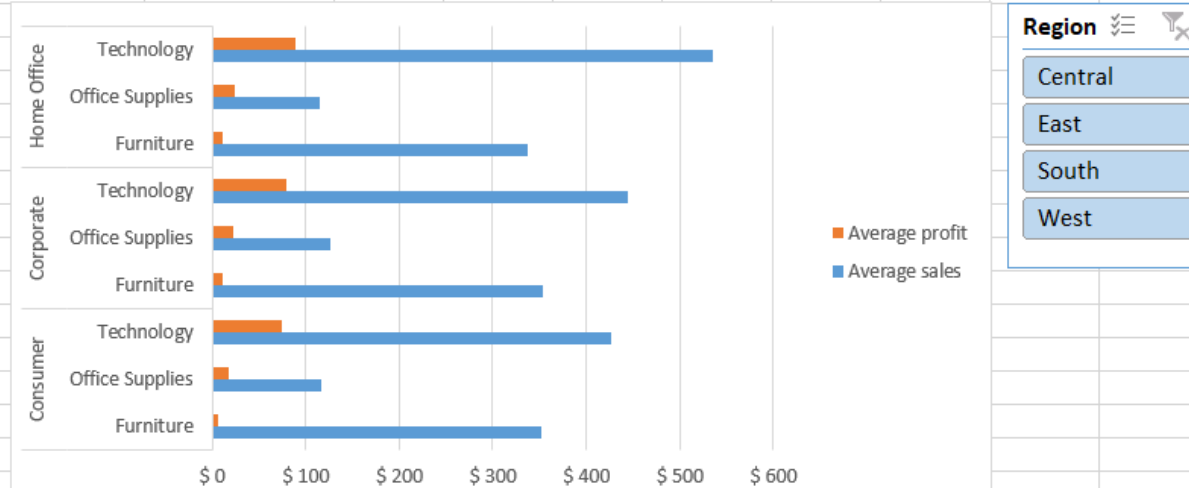
1. Sales trends: (1) Customers prefer faster delivery in Technology categories. Lets see the First Class ship mode total sales is higher then than Furniture and Office Supplies category. So company should focus on first class ship mode in Technology category for better coustomer experience bacause in standard class average shipment time is 5 days and technology category has overall high sales so for company this is important step for growth in technology market.

(2) The Furniture and Office Supplies sub-categories have the maximum sales in the Second Class and Standard Class categories. This suggests that customers are willing to wait longer for their deliveries as long as they receive their items in good condition and at a reasonable price.

(3) To ensure that these items reach the customers in good condition, the company could invest in better packaging and handling methods. This can help to maintain customer satisfaction and increase repeat business.

(4) How would you analyze the impact of the average sales and profit for each consumer, corporate and office segment with each category?

Row Labels	Average sales	Average profit
Consumer	\$ 224	\$ 26
Furniture	\$ 351	\$ 6
Office Supplies	\$ 116	\$ 18
Technology	\$ 427	\$ 74
Corporate	\$ 234	\$ 30
Furniture	\$ 355	\$ 12
Office Supplies	\$ 127	\$ 22
Technology	\$ 445	\$ 80
Home Office	\$ 241	\$ 34
Furniture	\$ 337	\$ 11
Office Supplies	\$ 115	\$ 24
Technology	\$ 536	\$ 89



(1) The Technology category is a standout performer, with the highest average sales and average profit across all three segments and all regions. This highlights the potential for continued growth and success in this area and suggests a strong focus on this category in terms of investment and marketing efforts is warranted.

(2) The Furniture category exhibits lower average sales and average profit across all three segments, particularly in the Central & East region where the average profit for Furniture is negative. It is imperative that the company evaluates the performance of the Furniture category in this region and implements appropriate measures to address the situation.

(3) The Office Supplies category exhibits moderate performance with regards to average sales and average profit across all three segments. However, it is important to note that the Central region shows a potential for improvement as the sales are generated but the average profit is low.

Note : It can be inferred that the Technology sub-category is the most profitable segment for the company and should be given priority in terms of investment and marketing efforts. The Furniture sub-category should be reviewed to identify opportunities for improvement and the Office Supplies sub-category can be seen as a moderate performer.

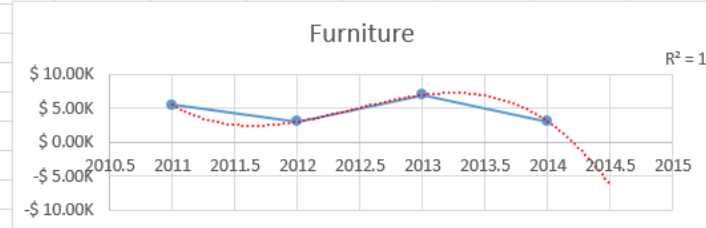
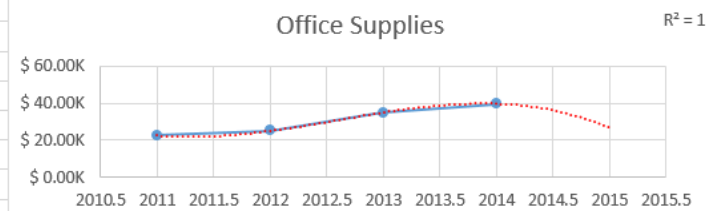
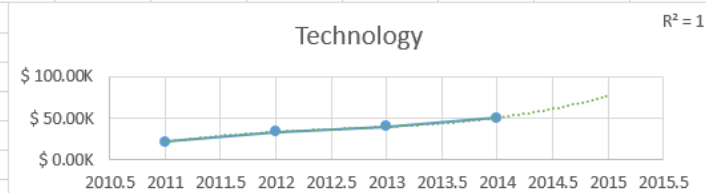
(5) What category should the company consider offering discounts on, and why?

Row Labels	Sum of Profit	Sum of Discount
Furniture	\$ 18.45K	\$ 0.37K
2011	\$ 5.46K	\$ 0.08K
2012	\$ 3.02K	\$ 0.08K
2013	\$ 6.96K	\$ 0.10K
2014	\$ 3.02K	\$ 0.12K
Office Supplies	\$ 122.49K	\$ 0.95K
2011	\$ 22.59K	\$ 0.19K
2012	\$ 25.10K	\$ 0.20K
2013	\$ 35.02K	\$ 0.24K
2014	\$ 39.78K	\$ 0.32K
Technology	\$ 145.45K	\$ 0.24K
2011	\$ 21.49K	\$ 0.05K
2012	\$ 33.50K	\$ 0.05K
2013	\$ 39.75K	\$ 0.06K
2014	\$ 50.71K	\$ 0.08K

Technology	Sum of Profit
2011	\$ 21.49K
2012	\$ 33.50K
2013	\$ 39.75K
2014	\$ 50.71K

Office Supplies	Sum of Profit
2011	\$ 22.59K
2012	\$ 25.10K
2013	\$ 35.02K
2014	\$ 39.78K

Furniture	Sum of Profit
2011	\$ 5.46K
2012	\$ 3.02K
2013	\$ 6.96K
2014	\$ 3.02K



The company should prioritize investments and marketing efforts in the Technology category. The Technology category has consistently seen high growth in terms of profit over the years and the trend line for the next year also appears positive with an R-squared value of 1.

The Office Supplies category, although having a moderate average profit over the years, should be monitored as the trend line for the next year shows a slight decrease.

The Furniture category, on the other hand, has consistently low profit and may require a review to identify opportunities for improvement.

(6) Which region has recorded a high volume of orders in last 3-4 years ?

Sum of Quantity													
Region	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Grand Total
Central	395	231	636	500	711	627	669	593	1135	699	1421	1163	8780
East	311	284	668	722	737	778	797	774	1568	781	1702	1496	10618
South	346	208	433	496	561	447	388	463	767	464	894	742	6209
West	448	345	754	723	841	792	851	966	1603	1151	1724	2068	12266
Grand Total	1500	1068	2491	2441	2850	2644	2705	2796	5073	3095	5741	5469	37873

Year

2011

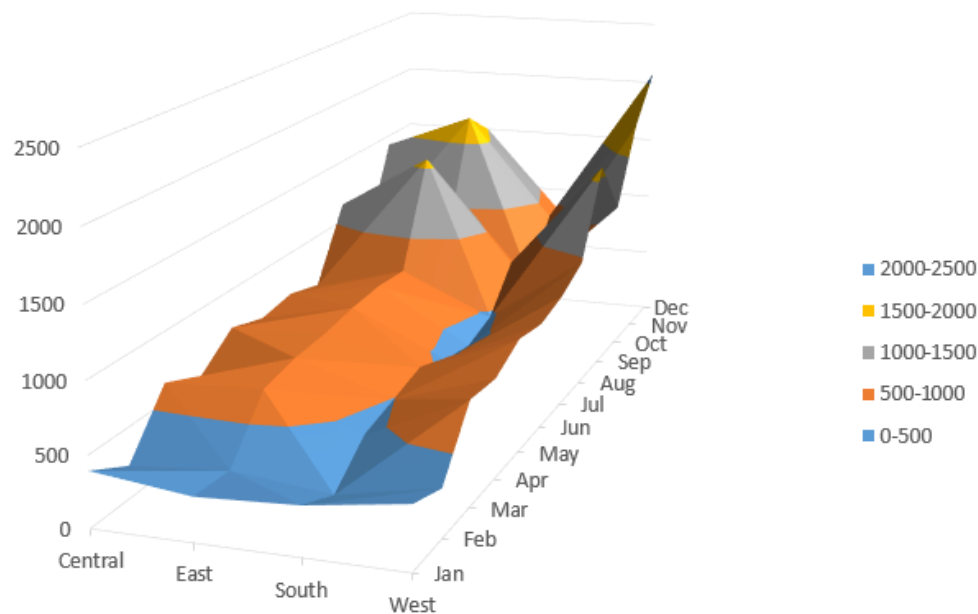
2012

2013

2014

It can be observed that the West region has the highest quantity of orders in all years, followed by the East and Central regions, while the South region has the lowest quantity of orders. This indicates that the West and east region could be a potential target for increased marketing and sales efforts, while the South region may require further analysis to understand why it is not performing as well and what can be done to improve sales in that region.

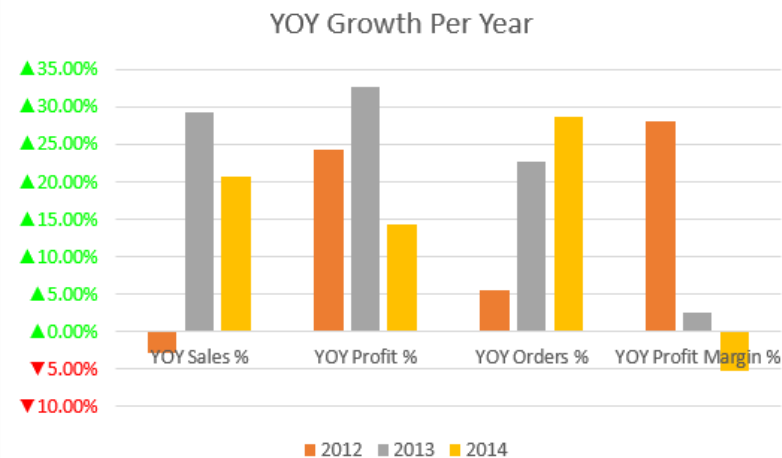
Order Quantity by region



(7) What is the year-over-year growth of the profit, sales, number of orders and profit margin ? Can you please provide an analysis of the trend and its implications for the business?

Year	Total Sales	Total Profit	Count of Orders	overall Profit margin %	Year	YOY Sales %	YOY Profit %	YOY Orders	YOY Profit Margin
2011	\$ 484.25K	\$ 49.54K	1993	10.23%	2011				
2012	\$ 470.53K	\$ 61.62K	2102	13.10%	2012	▼2.83%	▲24.37%	▲5.47%	▲28.00%
2013	\$ 608.47K	\$ 81.73K	2580	13.43%	2013	▲29.32%	▲32.63%	▲22.74%	▲2.57%
2014	\$ 733.95K	\$ 93.51K	3319	12.74%	2014	▲20.62%	▲14.41%	▲28.64%	▼5.15%

- (1) it can be observed that the sales growth in 2013 was the highest among the years at 29.32%, followed by 20.62% in 2014.
- (2) However, the profit growth in 2012 was the highest at 24.37% and then followed by 32.63% in 2013.
- (3) The order growth was highest in 2013 at 22.74% and then followed by 28.64% in 2014.
- (4) The YOY profit margin in 2013 is only 2.57% and then decrease in 2014 at 5.15% compared to an increase in 2012 at 28.00%. These trends indicate that while the sales and order growth improved over the years, the profit growth and profit margin had fluctuations.



(8) What recommendations can you provide to improve the overall profit of the company, considering the category & sub-category performance in terms of sales, profit and profit margins?

Row Labels	Sum of Sales	Sum of Profit	Sum of Profit margin %
Furniture	\$ 742.00K	\$ 18.45K	2.49%
Bookcases	\$ 114.88K	-\$ 3.47K	-3.02%
Chairs	\$ 328.45K	\$ 26.59K	8.10%
Furnishings	\$ 91.71K	\$ 13.06K	14.24%
Tables	\$ 206.97K	-\$ 17.73K	-8.56%
Office Supplies	\$ 719.05K	\$ 122.49K	17.04%
Appliances	\$ 107.53K	\$ 18.14K	16.87%
Art	\$ 27.12K	\$ 6.53K	24.07%
Binders	\$ 203.41K	\$ 30.22K	14.86%
Envelopes	\$ 16.48K	\$ 6.96K	42.27%
Fasteners	\$ 3.02K	\$ 0.95K	31.40%
Labels	\$ 12.49K	\$ 5.55K	44.42%
Paper	\$ 78.48K	\$ 34.05K	43.39%
Storage	\$ 223.84K	\$ 21.28K	9.51%
Supplies	\$ 46.67K	-\$ 1.19K	-2.55%
Technology	\$ 836.15K	\$ 145.45K	17.40%
Accessories	\$ 167.38K	\$ 41.94K	25.05%
Copiers	\$ 149.53K	\$ 55.62K	37.20%
Machines	\$ 189.24K	\$ 3.38K	1.79%
Phones	\$ 330.01K	\$ 44.52K	13.49%

(1) Based on the performance analysis of the Furniture category over the past 4 years, it is apparent that the sub-categories of Bookcases and Tables are not contributing positively to the overall profit and profit margin of the company. Despite a relatively stable sales trend, the profit margin for these sub-categories is negative.

(2) The analysis of the Office Supplies sub-category shows a positive performance, with a total profit of \$122.5K and a profit margin exceeding 17%. As such, there is no immediate concern in this area. On the other hand, while the Technology sub-category may show lower profit margins for the Machines segment, the overall trend for this sub-category is positive and does not warrant immediate attention.

(3) It is evident from the data that the Technology and Office Supplies categories have the most favorable performance in terms of overall profitability, with an overall profit margin of 17% and above. Given these findings, it is recommended that the company prioritize investment and marketing efforts in these segments. On the other hand, the Furniture category, despite having a significant amount of sales, has not been performing well in terms of profitability, with a low overall profit (\$19K) and overall profit margin (2.5%). To improve the overall performance, it is suggested that a thorough review be conducted on the Furniture category and its sub-categories, particularly the Bookcases and Tables segments, to identify opportunities for improvement and enhance their profitability.