

## Exploratory Data Analysis

### Topic of Study: Tableau Super Store Dataset

#### *Data Selection:*

The dataset is from Tableau training material. As this is my first attempt at creating visualizations using Tableau, choosing a dataset provided by Tableau was a good choice from learning perspective as well as exploring the various functionalities of Tableau.

#### *Data Analysis and Terms Used:*

## Initial Exploration:

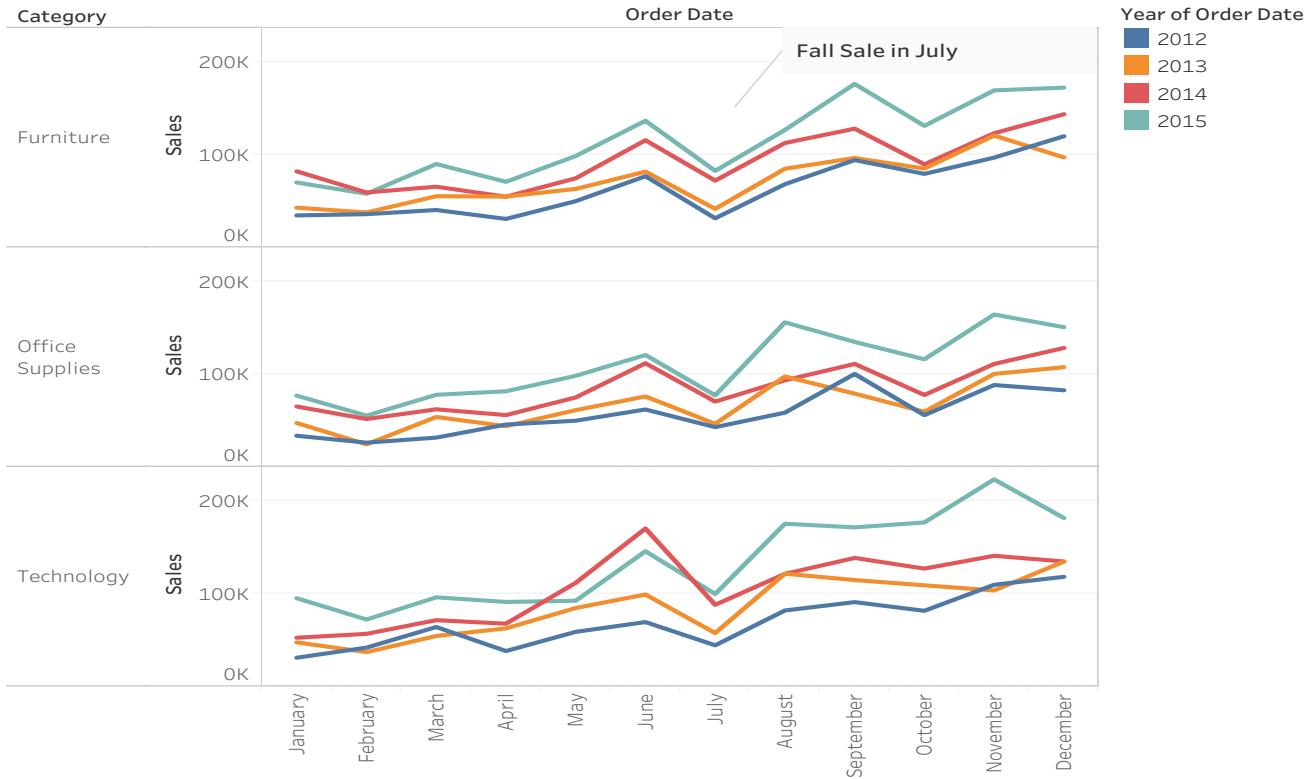
### Interpretation:

The trend of sum of Sales for Order Date Month broken down by category. Color shows details about Order Date Year. The second graph represents Sum of Sales for each Sub-Category (group) broken down by Market vs. Category.

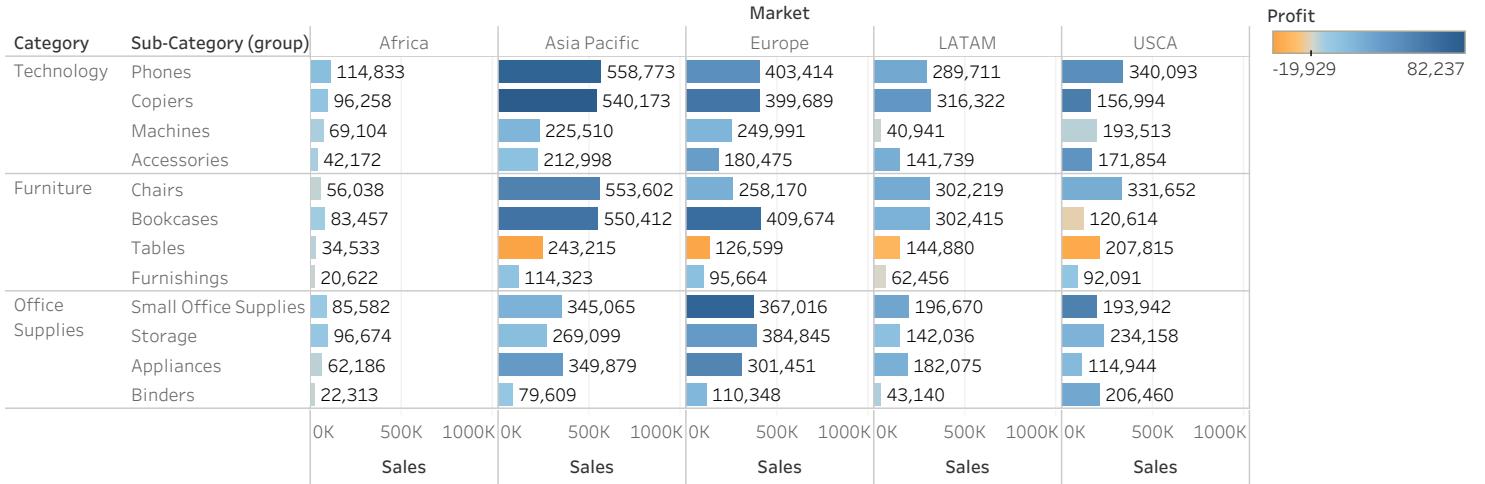
### Inference:

From second graph, we can see that Africa is an emerging market.

### Sales by Month across the years



### Sales broken down by Market vs Category



## *Second Exploration:*

To see how profits are doing across different product categories, we calculate the percentage difference in sales from the Previous Year of Order Date and create a cross tab with sum of Sales broken down by Year and Month of Order Date and Category. Category Highlighter is used to compare the profits among different categories.

## Interpretation:

The marks are labeled by % Difference in Sales from the Previous Year of Order Date and Sales. The Profit is indicated by the colors from gold to green.

## Inference:

Comparing the three categories, it could be seen that the furniture category did not have a strong profit in the fall 2015 compared to Technology and Office Supplies.

## Profit across Categories(Technology):

Month of O..	Category	Order Date								Profit	
		2012		2013		2014		2015			
		% Differen..	Sales	% Differen..	Sales	% Differen..	Sales	% Differen..	Sales		
January	Furniture	34,464	24.08%	42,761	91.31%	81,805	14.68%	69,799	-1,811	31,298	
	Office Supplies	32,527	40.07%	47,664	57.10%	64,984	17.06%	76,654	59,045		
February	Technology	30,908	53.39%	47,411	10.52%	52,398	80.95%	94,815	94,815	57,703	
	Furniture	35,799	5.15%	37,655	57.08%	59,118	-2.39%	51,045	51,045		
March	Office Supplies	26,415	10.05%	30,545	10.00%	62,008	25.11%	77,576	55,761	89,705	
	Technology	41,784	-11.63%	36,922	53.21%	56,569	27.19%	71,951	71,951		
April	Furniture	40,277	36.76%	55,082	18.59%	65,323	37.33%	74,321	90,849	89,705	
	Office Supplies	31,579	70.12%	53,721	15.43%	62,008	25.11%	77,576	55,761		
May	Technology	63,891	-15.05%	54,273	31.30%	71,263	34.46%	95,819	95,819	57,703	
	Furniture	30,690	78.24%	54,702	-0.21%	54,587	29.24%	70,551	70,551		
June	Office Supplies	45,563	-3.68%	43,886	27.07%	55,766	45.92%	81,372	81,372	51,045	
	Technology	38,081	64.03%	62,464	8.01%	67,469	34.65%	90,849	90,849		
July	Furniture	49,769	26.46%	63,839	18.36%	74,321	32.19%	98,312	98,312	74,321	
	Office Supplies	49,731	22.79%	61,063	22.42%	74,755	31.06%	97,975	97,975		
August	Technology	58,728	43.65%	84,363	32.02%	111,372	-17.29%	92,114	92,114	136,123	
	Furniture	76,585	0.59%	61,481	41.89%	115,289	18.11%	100,890	100,890		
September	Office Supplies	77,511	10.00%	60,000	10.00%	115,289	18.11%	100,890	100,890	126,284	
	Technology	69,194	42.86%	98,849	71.76%	169,780	-14.39%	145,351	145,351		
October	Furniture	31,383	32.21%	41,491	73.18%	71,854	14.60%	82,344	82,344	126,284	
	Office Supplies	42,807	10.00%	45,145	10.00%	65,465	9.50%	70,777	70,777		
November	Technology	44,245	29.73%	57,399	52.94%	87,784	13.22%	99,390	99,390	155,431	
	Furniture	68,000	24.48%	84,644	32.67%	112,296	12.46%	126,284	126,284		
December	Office Supplies	58,390	66.57%	97,260	-4.23%	93,150	66.86%	155,431	155,431	174,905	
	Technology	81,673	48.44%	121,239	-0.16%	121,043	44.50%	174,905	174,905		
January	Furniture	93,934	2.38%	96,166	32.79%	127,701	37.65%	125,777	125,777	174,905	
	Office Supplies	99,987	-21.15%	78,844	40.48%	110,762	21.33%	134,387	134,387		
February	Technology	90,667	26.15%	114,379	20.79%	138,157	23.77%	170,994	170,994	174,905	
	Furniture	92,724	10.00%	94,224	10.00%	125,193	16.33%	130,701	130,701		
March	Office Supplies	55,700	6.61%	60,283	20.33%	77,393	40.59%	115,771	115,771	174,905	
	Technology	81,320	33.71%	108,733	16.52%	126,695	39.15%	176,295	176,295		
April	Furniture	96,558	24.57%	120,279	2.10%	122,803	37.50%	168,849	168,849	174,905	
	Office Supplies	97,000	12.00%	121,043	12.00%	125,193	16.33%	130,701	130,701		
May	Technology	109,309	-5.58%	103,214	36.08%	140,451	58.47%	222,579	222,579	174,905	
	Furniture	119,531	-19.00%	96,817	47.91%	143,203	19.95%	171,768	171,768		
June	Office Supplies	82,124	30.11%	107,244	15.58%	128,124	17.47%	150,279	150,279	174,905	
	Technology	117,852	13.87%	134,196	0.10%	134,325	34.82%	181,097	181,097		

## Profit across Categories (Furniture):

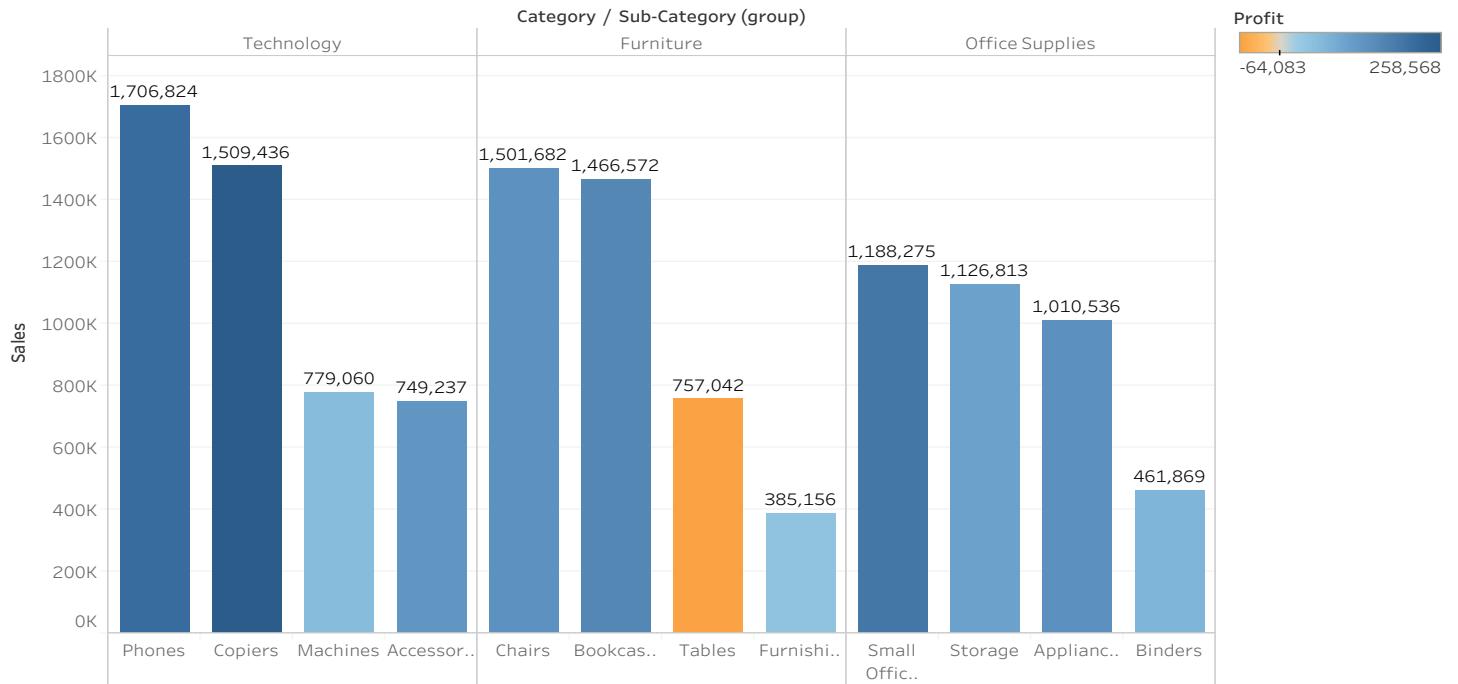
Month of O..	Category	Order Date					Profit	
		2012		2013		2014		
% Differen..	Sales	% Differen..	Sales	% Differen..	Sales	% Differen..	Sales	
January	Furniture	34,464	24.08%	42,761	91.31%	81,805	-14.68%	69,799
	Office Supplies	12,527	40.97%	18,654	52.79%	54,934	17.98%	55,554
	Technology	30,908	53.39%	47,411	10.52%	52,398	80.95%	94,815
February	Furniture	35,799	5.13%	37,635	57.08%	59,118	-2.39%	57,703
	Office Supplies	26,135	17.03%	24,937	115.21%	26,569	7.04%	55,924
	Technology	41,784	11.63%	36,522	21.21%	78,295	27.19%	71,951
March	Furniture	40,277	36.76%	55,082	18.59%	65,323	37.33%	89,705
	Office Supplies	14,779	10.00%	21,204	24.29%	24,429	25.00%	25,110
	Technology	63,801	15.05%	54,773	31.20%	78,295	14.00%	95,210
April	Furniture	30,690	78.24%	54,702	-0.21%	54,587	29.24%	70,551
	Office Supplies	10,801	4.02%	15,664	6.11%	20,070	55.00%	24,450
	Technology	38,091	64.02%	40,644	5.00%	35,660	0.00%	30,040
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	Office Supplies	49,731	22.79%	51,063	22.42%	74,755	31.08%	97,975
	Technology	60,791	43.00%	48,273	11.00%	74,371	1.00%	74,371
June	Furniture	76,585	6.39%	81,481	41.45%	115,251	18.11%	136,123
	Office Supplies	51,793	22.74%	75,845	46.99%	111,489	7.94%	120,349
	Technology	70,793	10.00%	68,123	1.00%	74,371	1.00%	74,371
July	Furniture	31,383	32.21%	41,491	73.18%	71,854	14.60%	82,344
	Office Supplies	42,807	8.27%	46,346	51.66%	50,291	9.50%	56,971
	Technology	44,245	29.50%	57,399	53.99%	82,739	1.00%	82,739
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October	Furniture	79,094	7.24%	84,824	5.30%	89,319	46.33%	130,701
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	Technology	81,320	33.71%	108,733	16.52%	126,693	35.15%	127,965
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	Technology	109,309	5.58%	103,214	35.08%	140,451	1.00%	140,451
December	Furniture	119,531	-19.00%	96,817	47.91%	143,203	19.95%	171,768
	Office Supplies	82,424	30.11%	107,244	19.28%	127,926	17.47%	150,779
	Technology	117,852	13.82%	134,195	0.10%	134,325	34.82%	181,097

The crosstab plotted above does not provide information about which sub categories are performing poor. To see the performance of sub categories within furniture, a bar chart is plotted with colors showing the sum of Profit. The plot is sorted by the total sales in each category.

#### Inference:

This plot shows that despite Tables having greater sales than Furnishings the profit from Tables is not good(negative).

#### Sales by Sub-Category



### Third Exploration:

The analysis from the plots till now have been on the sales profit overall and the categories which are performing poor. To see whether the trend in furniture profits is across all the stores globally, a Symbol map is a perfect choice as it gives the flexibility and granularity to drill down to a particular region and helps in analysis of the business in that particular region and compare with others. The symbol map also allows to create custom territories which helps in analyzing the profits and sales for a global company among different hemispheres and zones. I have created a custom group of 29 countries from the southern hemisphere and then compared the sales seasonality with the rest of the countries.

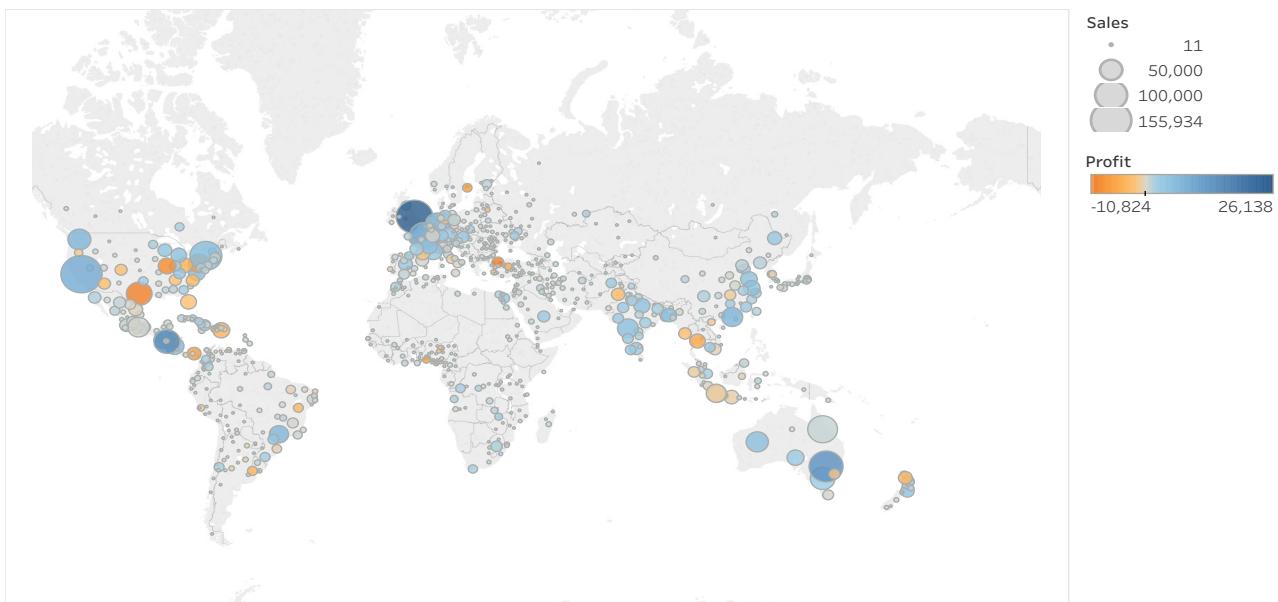
#### Interpretation:

For the first graph, Color shows sum of Profit and Size shows sum of Sales. The data is filtered on category, which keeps Furniture. For the second graph, the Color shows details about Order Date Year. The view is filtered on Category, which keeps Furniture, Office Supplies and Technology

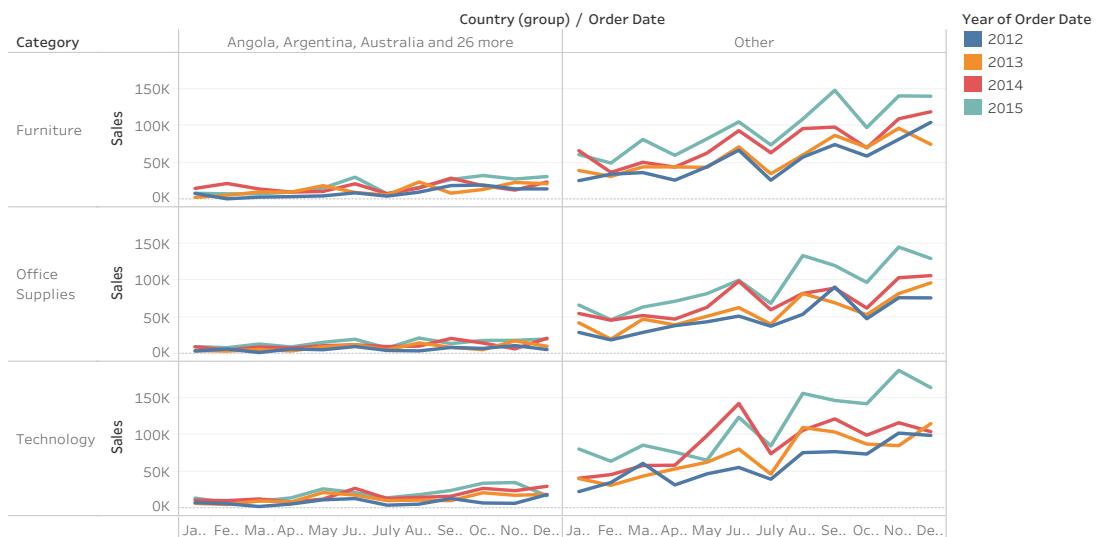
#### Inference:

It could be seen that the countries in southern hemisphere are growing markets and we have less revenue overall from these regions.

#### Global Sales and Profits(Furniture)



#### Sales Seasonality comparing custom group with others



## [Further Exploration:](#)

To check whether the profitability issue is due to the shipping cost, marks could be used to show the details of profit based on each category (Category is defined by the color). Total shipping cost and profit for all transactions within a single category for each customer. It also helps to fully disaggregate our data to plot each and every transaction at the record level. To drill down further and see whether the returned orders also have any effect on the profits and shipping cost, returned orders is also added in the analysis.

### [Interpretation:](#)

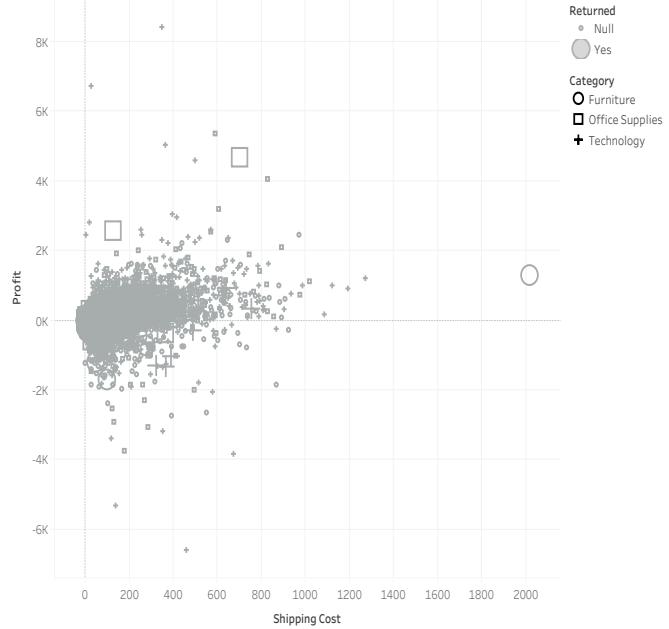
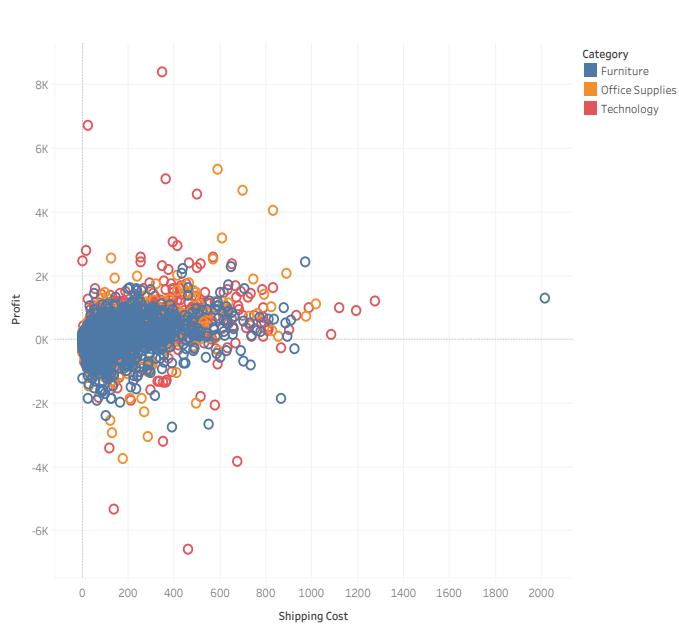
The first plot shows the relation between Shipping Cost and Profit for Customer ID and the color shows details about Category.

The second plot shows relation between Shipping Cost and Profit with size showing the details about returned items. Shape shows details about Category for Customer ID.

### [Inference:](#)

The second plot shows that the highest shipping value is related to the item returned but it does not show any relationship with profit. So returned items do not have significant impact on profit.

## **Customer Breakdown**



## Dashboards

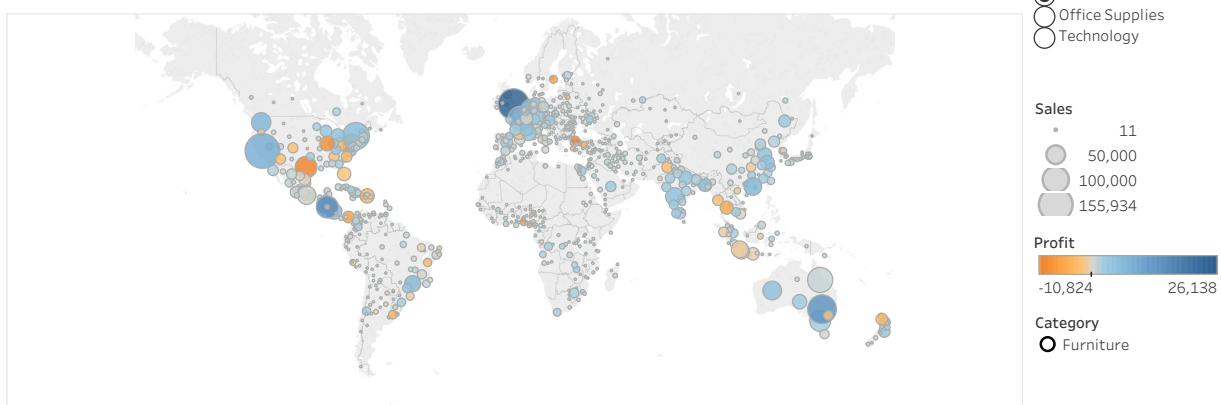
### Global Sales and Profits



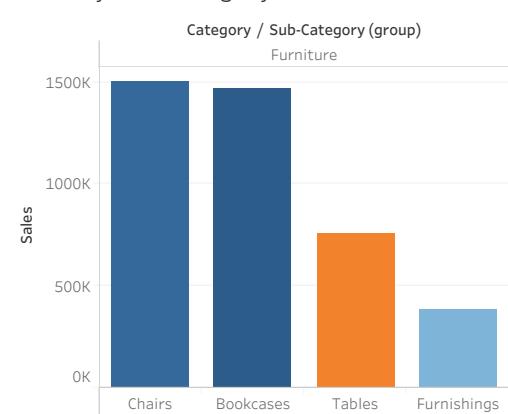
To visualize the performance of furniture across different regions and breakdown of profits for each customer.

### Sales Dashboard

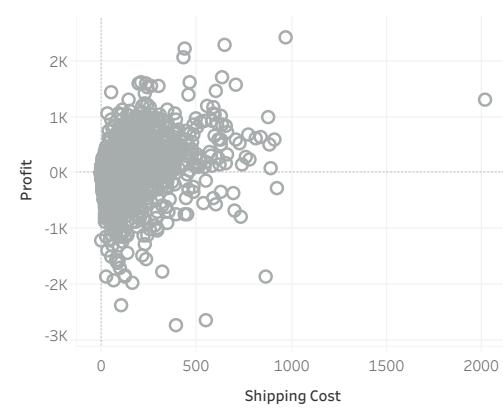
#### Global Sales and Profits



#### Sales by Sub-Category



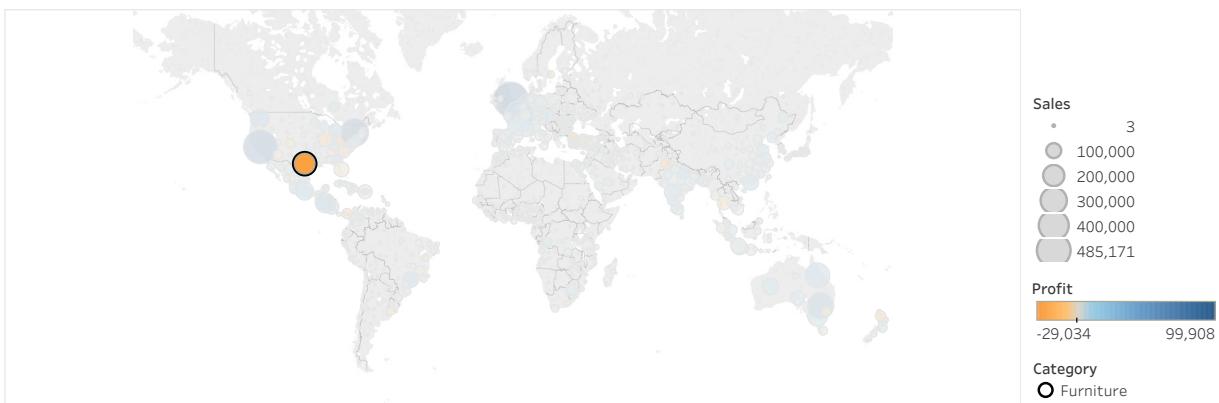
#### Customer Breakdown



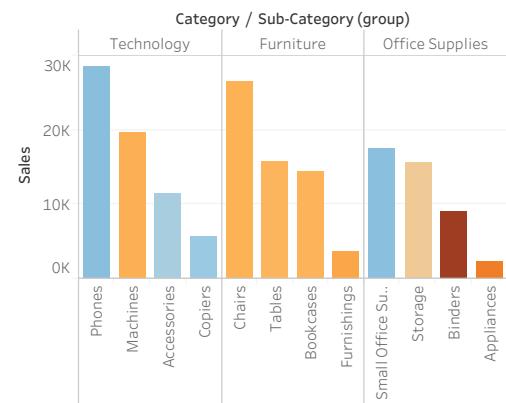
Analyzing the profit vs sales across different categories for Texas. The dashboard highlights the profitability issues in Texas

## Sales Dashboard

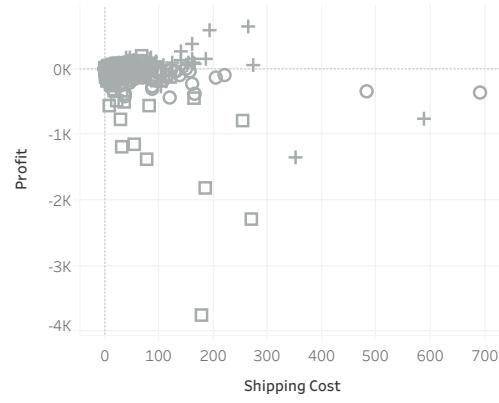
### Global Sales and Profits



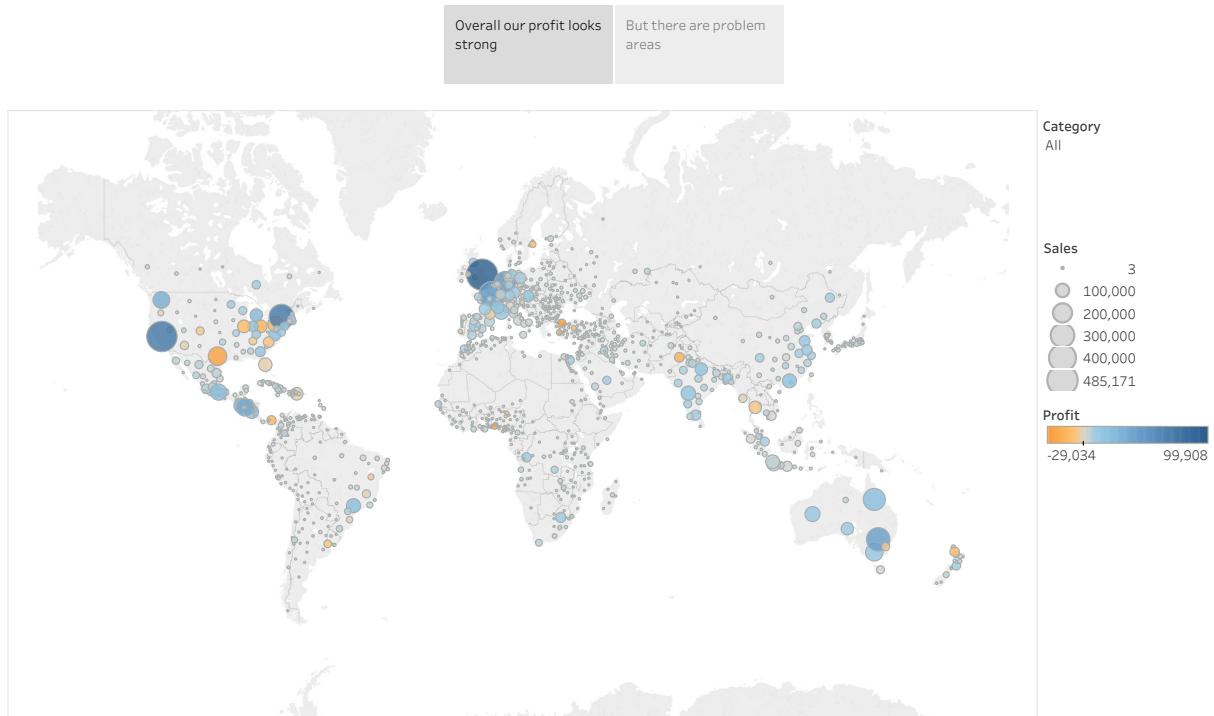
### Sales by Sub-Category



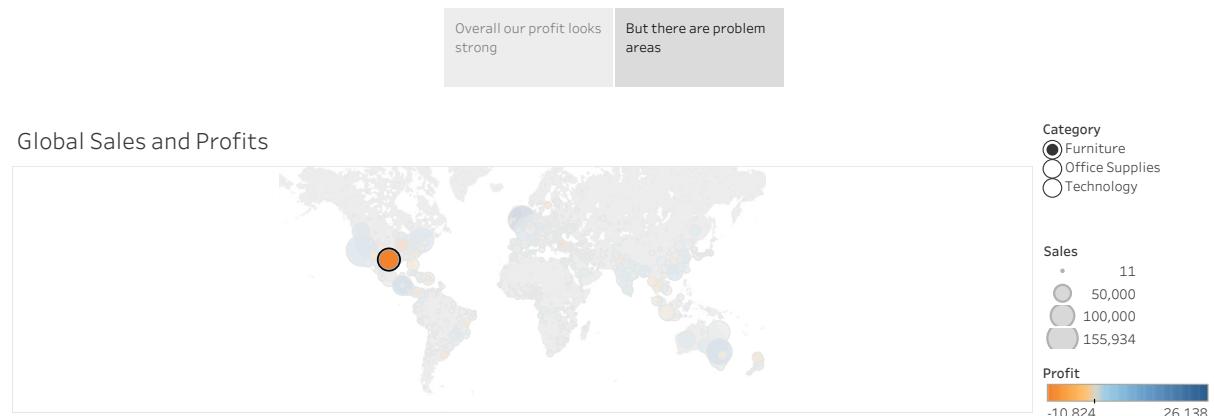
### Customer Breakdown



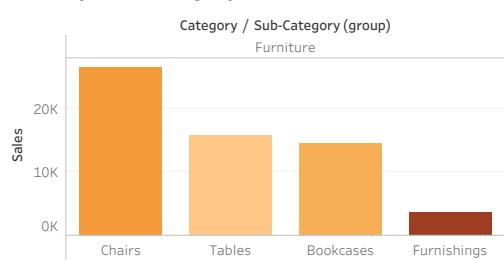
## Sales vs Profit Story



## Sales vs Profit Story



### Sales by Sub-Category



### Customer Breakdown

