

Performance Report By Region
December 2021

			Simple			Financial		Sales	Returns		Shipping
Region	Regional Manager	Category	Total Sales	Total Quantity	Total Profit	Gross Margin Ratio (%)	Net Margin Ratio (%)	Sales Effectiveness	Return Rate (%)	Profit Margin on Returns (%)	Avg.Order Processing Time (Days)
Central	Roxanne Rodriguez	Furniture	6504.89	63	318.04	-3.48	-62.30	5.53	3.17	-0.15	3
		Office Supplies	7870.80	252	-2821.54	13.55	-28.98	3.68	13.10	-3.89	4
		Technology	4507.38	54	1265.12	46.08	25.93	8.02	0.00		4
East	Chuck Magee	Furniture	6954.87	99	547.57	33.26	3.85	5.62	0.00		4
		Office Supplies	8232.31	310	1603.70	35.84	3.98	6.74	2.90	0.32	4
		Technology	4897.24	75	1073.83	35.57	6.13	6.72	6.67	0.29	4
South	Fred Suzuki	Furniture	5585.28	61	279.29	36.51	10.32	5.55	9.84	-0.27	4
		Office Supplies	5108.69	129	850.53	38.55	12.08	6.92	13.18	0.50	4
		Technology	4515.76	49	1197.47	40.70	15.87	7.25	4.08	0.16	4
West	Sadie Pawthorne	Furniture	12362.43	171	1.85	25.47	-8.57	5.22	16.96	1.83	4
		Office Supplies	9225.14	370	2141.62	45.22	21.23	7.34	19.73	5.65	4
		Technology	8064.52	90	2025.85	32.36	0.67	6.52	8.89	0.38	3
Grand Total			83829.32	1723	8483.35	379.63	0.20	75.12	98.51	4.83	48

Operational Report Metrics

Metric Name	Metric type	Formula	Description
Total Sales	Simple	Sum of sales across category and region	It represents addition of sales value across category and region
Total Quantity	Simple	Sum of quantities across category and region	It represents addition of quantity across category and region
Total Profit	Simple	Sum of profits across category and region	It represents addition of profits across category and region
Gross Margin Ratio	Financial	$(\text{Sales} - \text{COGS} / \text{Sales}) * 100$	It shows how much profit you have after covering product costs.
Net Margin Ratio	Financial	$((\text{Gross Profit} - \text{Other Expenses} - \text{Discounts}) / \text{Sales}) * 100$	It reveals the percentage of sales that turns into profit after all expenses.
Sales Effectiveness	Sales	$(\text{Sales Revenue} / \text{Cost of sales}) * 100$	It measures how effective your sale is, in percentage terms.
Return Rate (%)	Returns	$(\text{Total Quantity Returned} / \text{Total Quantity Sold}) * 100$	It shows the portion of sold items that customers send back.
Profit Margin on Returns	Returns	$(\text{Profit on Returned Items} / \text{Total Sales Revenue from Returned Items}) * 100$	It reveals the profit you make from items that customers return.
Average Order Processing Time	Shipping	$(\text{Sum of Order-to-Ship Times} / \text{Number of Orders})$	It shows the typical time it takes to handle an order from start to shipment.

Assumptions:

For the enhanced financial and sales performance metrics, we added some additional columns on the source data based on the certain assumptions. Assumptions and calculation of the new columns are listed below:

We assume amount in the "Sales" column is the combination of cost of goods sold, cost of sales, other expenses, profit, and discount. Thus, we are defining sale column as,
 $\text{Cost of Goods Sold (COGS)} + \text{Cost of Sales} + \text{Profit} + \text{Other Expenses} - \text{Discounts} = \text{Sales Revenue}$

In addition to that, we assume for every sale, after excluding profit and discount, COGS will contribute to 2x of the sale amount and Cost of sales and other expense will contribute to x/2 of the sale amount. For example,
If sale=100%, discount is 1% and profit after discount is 15%, then remaining 85% of value will be splitted to COGS, Cost of sales, and for the other expenses.

Where COGS will contribute to $(85/3)*2 = 56.67\%$ of sales value, Cost of sales will contribute to $(85/3)*1 = 28.34\%$ of sales value, and other expense will contribute to $(85/3)*1 = 28.34\%$ of sales value.

By defining above calculation, we are adding three new columns in the source data that is listed below:

Cost of Goods Sold(COGS)

Cost of sales

Other Expenses