

Case Study:

Sales Performance & Operational Efficiency Analysis

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Introduction

Background: A retail healthcare company is evaluating the performance of its regional stores and wants to identify opportunities to improve sales and operational efficiency.

Dataset: store_performance_dataset

Objective: Evaluate regional store performance and operational efficiency in order to uncover opportunities to enhance operational efficiency, customer satisfaction, and profitability.

Stakeholders: store managers, regional directors, finance, operations, senior management

Part I: Data Analysis

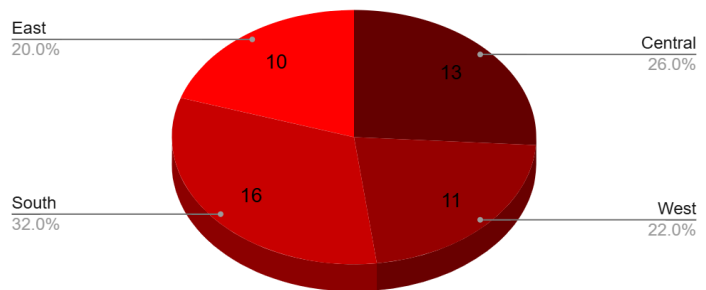
1. Descriptive Analysis:

Regional Sales Data Summary

Region	Avg Monthly Sales	Avg Employees	Avg Operating Hours	Avg Customer Satisfaction	Avg Inventory Turnover	Stores
Central	\$49,929.60	21	55	7.2	4.8	13
East	\$59,085.66	15	64	7.3	5.1	10
South	\$52,050.17	17	58	7.5	5.4	16
West	\$50,438.67	11	62	7.6	5.8	11
Average	\$52,876.03	16	60	7.4	5.3	13

In total there are 50 stores across 4 different regions: Central, East, South, and West.

Stores per Region

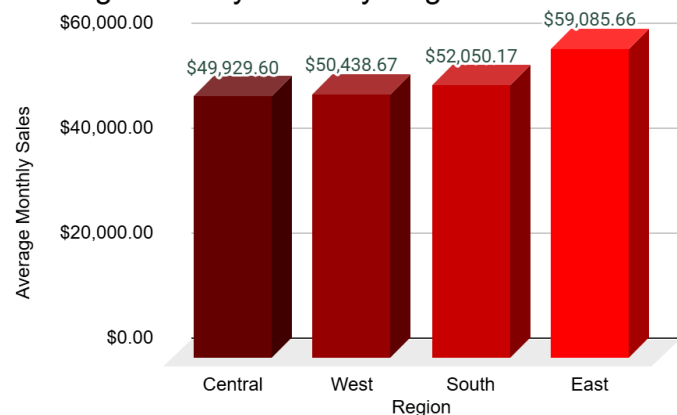


Key Findings:

- Highest Average Sales: East
- Highest Satisfaction: West
- Highest Inventory Turnover: West
- Lowest Performance: Central

Recommendations: Investigate further what East and West region stores are doing well (management practices, programs, customer demographics, etc) and see if those can be replicated in the Central stores to boost productivity. Also, look into whether some South stores are underperforming despite the region's high sales.

Average Monthly Sales by Region



Top Performing Stores by Sales

Store ID	Region	Project Initiative	Avg Monthly Sales	Employees	Operating Hours	Customer Satisfaction	Inventory Turnover
Store_037	South	Yes	\$84,966.06	26	74	6.1	2
Store_038	East	No	\$80,806.44	14	79	5.6	9.3
Store_022	East	No	\$80,159.12	24	74	9	3.9

Top Performing Stores by Customer Satisfaction

Store ID	Region	Project Initiative	Avg Monthly Sales	Employees	Operating Hours	Customer Satisfaction	Inventory Turnover
Store_045	South	No	\$54,606.05	8	53	9.9	3.2
Store_046	South	No	\$54,716.57	18	42	9.8	1.8
Store_040	Central	No	\$64,899.29	26	66	9.7	3.3

Bottom Performing Stores by Sales

Store ID	Region	Project Initiative	Avg Monthly Sales	Employees	Operating Hours	Customer Satisfaction	Inventory Turnover
Store_050	West	Yes	\$22,069.22	18	53	6.4	4.1
Store_014	Central	Yes	\$24,301.19	22	48	6.1	3.1
Store_048	Central	No	\$24,876.40	19	44	7.5	9.1

Bottom Performing Stores by Customer Satisfaction

Store ID	Region	Project Initiative	Avg Monthly Sales	Employees	Operating Hours	Customer Satisfaction	Inventory Turnover
Store_034	West	Yes	\$65,851.62	8	62	5	9.4
Store_004	Central	No	\$25,652.29	27	55	5.1	1.5
Store_006	South	No	\$61,489.64	29	63	5.2	9.2

Key Findings:

- The top sales stores did not always equate to high customer satisfaction and vice versa.
- The bottom sales stores did not always equate to low customer satisfaction and vice versa.

Recommendations:

Learn what factors drive top store success (training, programs, location dependent demand, etc). For bottom stores, perform reviews to find out what is causing low sales, and formulate turnaround campaigns. Additionally, investigate stores like 034 where satisfaction is low, but sales are high.

2. Correlation Analysis:

Correlation Analysis for Sales

Correlation	Correlation	Notes
sales to employees	-0.07	Low correlation
sales to customer satisfaction	0.18	Positive correlation
sales to inventory turnover	-0.12	Negative correlation

Key Findings:

- Sales vs. Number of Employees:

The correlation is almost zero ($r = -0.07$), indicating almost no linear relationship between employees and average sales.

- Sales vs. Customer Satisfaction:

This shows a weak positive correlation ($r = 0.18$). The relationship isn't very strong.

- Sales vs. Inventory Turnover:

There is a slightly negative correlation ($r = -0.12$) between sales and inventory turnover rate.

Average Monthly Sales by Employees

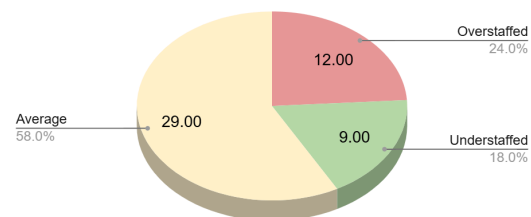


3. Efficiency Insights:

Key Findings:

- Top Overstaffed Stores (low sales per employees): 016, 004, 009
- Top Understaffed Stores (high sales per employee): 021, 035, 043

Staffing by Store Count



Recommendations:

Rework staffing levels. Overstaffed stores should freeze hiring or reallocate employees to busier stores or roles. Understaffed stores need additional support; consider hiring extra staff or help during peak hours. Research into a monthly breakdown to see if there are seasons where understaffed stores struggle more. Long term, use sales per employee as a KPI to continuously optimize worker allocation.

Stores with Low Turnover and High Hours

Store ID	Region	Project Initiative	Avg Monthly Sales	Employees	Operating Hours	Customer Satisfaction	Inventory Turnover
Store_027	West	Yes	\$49,809.11	19	67	9.5	1.1
Store_001	Central	Yes	\$45,505.01	19	62	7.5	1.3
Store_024	South	Yes	\$61,204.86	11	72	9.5	1.4

Key Findings:

- Stores with high operating hours and below average inventory turnover (027, 001, 024)

Recommendations:

Evaluate whether these stores truly need to be open longer. Additionally, address the low turnover by reducing inventory on hand. Overall, align operating hours and inventory levels with actual customer demand.

4. Project Impact:

Project Initiative Summary Statistics

Project Initiative	Avg Monthly Sales	Avg Employees	Avg Operating Hours	Avg Customer Satisfaction	Avg Inventory Turnover	Stores
No	\$54,235.18	17	58	7.3	5.1	31
Yes	\$49,804.17	15	63	7.5	5.5	19

Key Findings:

- There are 19 stores implementing project initiatives.
- The stores with project initiatives are yielding higher customer satisfaction and better inventory turnover.
- Store sales are slightly lower than non-project stores.

Recommendation: Continue the initiatives focusing on service and inventory management. The improvements in satisfaction and turnover are likely foundations for future sales growth. However, consider adding projects with sales oriented tactics to drive sales. Also, expand successful elements of the initiatives to other stores.

Overall: There is room to improve both sales performance and operational efficiency. By learning from high performers and strategically supporting or correcting underperformers, the company can boost overall results.

- Focus on: regions, staffing, aligning store hours, inventory demand, and leveraging successful programs

Recommendation Summary

Area	Insight	Recommendation
Regions	Underperforming Regions	Investigate standard practices across top regions to implement across underperforming regions.
Staffing	Over/Understaffing	Match staffing levels across stores and identify gaps in employment.
Turnover	Low Turnover with High Hours	Adjust hours and stock as needed to manage store efficiency.
Initiatives	Higher Satisfaction, Slow Sales	Continue, expand, and monitor quarterly.
