

Executive Summary

This report provides a comprehensive evaluation of vendor performance, procurement efficiency, and profitability trends.

Through detailed analysis of sales, purchase, and profit metrics, the study identifies opportunities for optimizing cost structures

and improving revenue contribution. Patterns in purchase pricing, order sizes, and vendor profitability highlight areas where strategic

negotiation, vendor prioritization, and improved procurement practices can significantly enhance business performance.

Business Problems

1. Identifying high-performing and low-performing vendors to support strategic procurement decisions.
2. Understanding inconsistencies in Unit Purchase Price across different order sizes to optimize negotiation strategies.
3. Improving Gross Profit contribution by analyzing vendor-level sales and cost behavior.
4. Identifying inefficiencies in inventory and purchase processes to reduce unnecessary spending.
5. Strengthening the correlation between procurement volume and sales performance to improve ROI.

Reporting Summary

The reporting includes:

- Vendor-level performance summaries (Sales, Purchase, Profit).
- Visualizations such as pie charts and boxplots to compare vendor contributions and pricing behavior.
- Profitability trends and cost analysis across vendor relationships.
- Actionable recommendations for operational improvements and negotiation strategies.

EDA Tools Used

1. **Pandas**: Data cleaning, transformation, grouping, and aggregation.
2. **NumPy**: Numerical operations and statistical analyses.
3. **Matplotlib**: Pie charts, bar charts, and detailed plotting.
4. **Seaborn**: Boxplots, distribution analysis, and advanced visualizations.
5. **Jupyter Notebook**: Interactive exploration and stepwise analysis.
6. **SQL** (if applicable): Data extraction and filtering before importing into Python.

Conclusion

The analysis reveals clear opportunities for improving vendor performance management, reducing purchase costs,

and strengthening profit margins. By leveraging data-driven insights and optimizing vendor strategies,

the company can significantly enhance operational and financial outcomes.