Vendor Performance Analysis

Analyzing 12+ million sales records across six datasets to uncover profitability drivers, operational inefficiencies, and strategic opportunities for margin improvement.

Project Scope

Data Scale

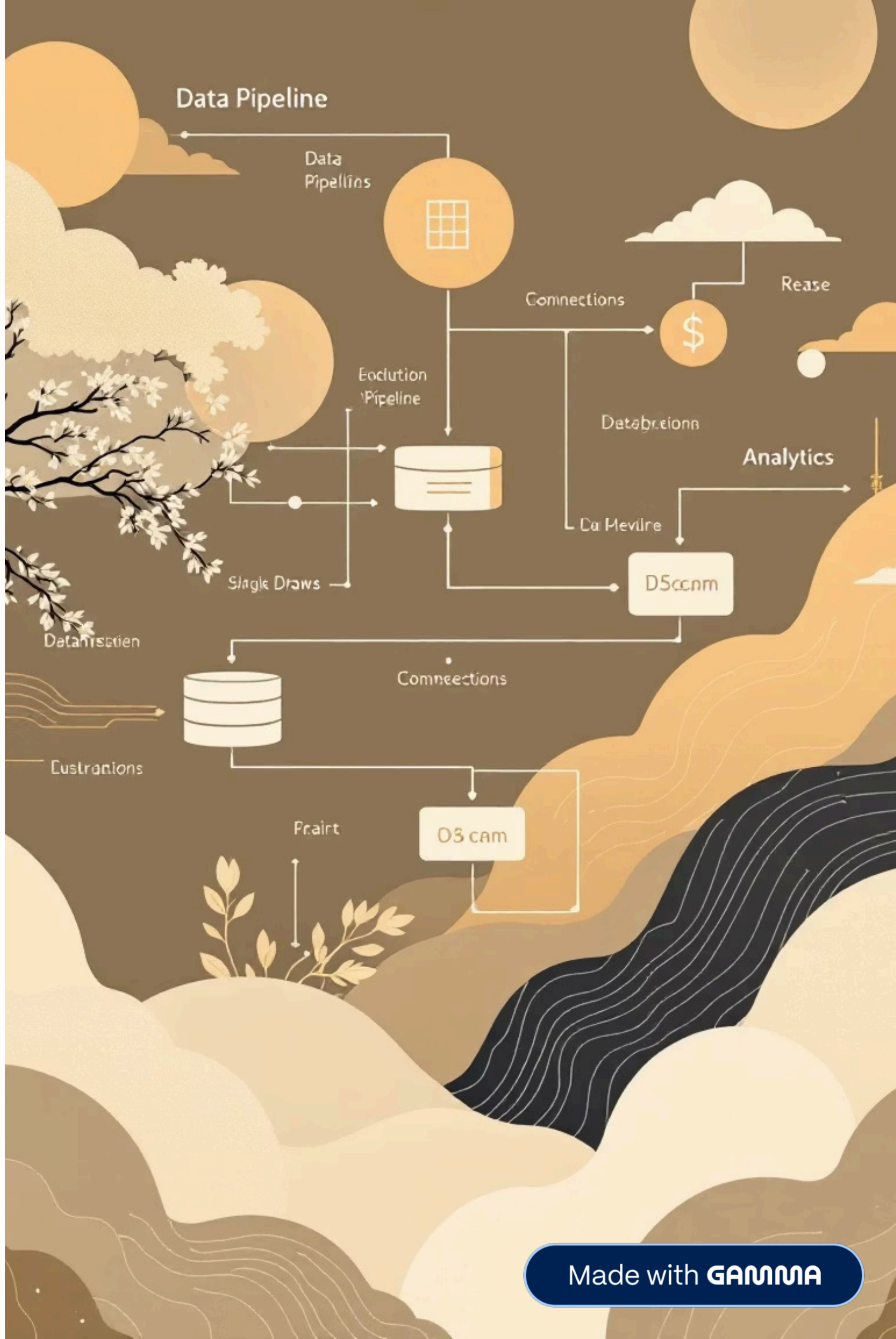
12.8 million sales records, 2.4 million purchase transactions, and 206K+ inventory items analyzed using MySQL and Python.

Final consolidated dataset: 10,692 rows across 18 key metrics including profit margin, stock turnover, and sales ratios.

Analysis Tools

Python (Pandas, NumPy, Matplotlib, Seaborn) for data processing and exploratory analysis.

MySQL for high-volume data management. Power BI for business-ready visualizations and insights.



Critical Data Insights

Negative Margins Detected

Certain products sold below cost, with profit margins dropping to negative infinity when revenue hits zero.

Stagnant Inventory

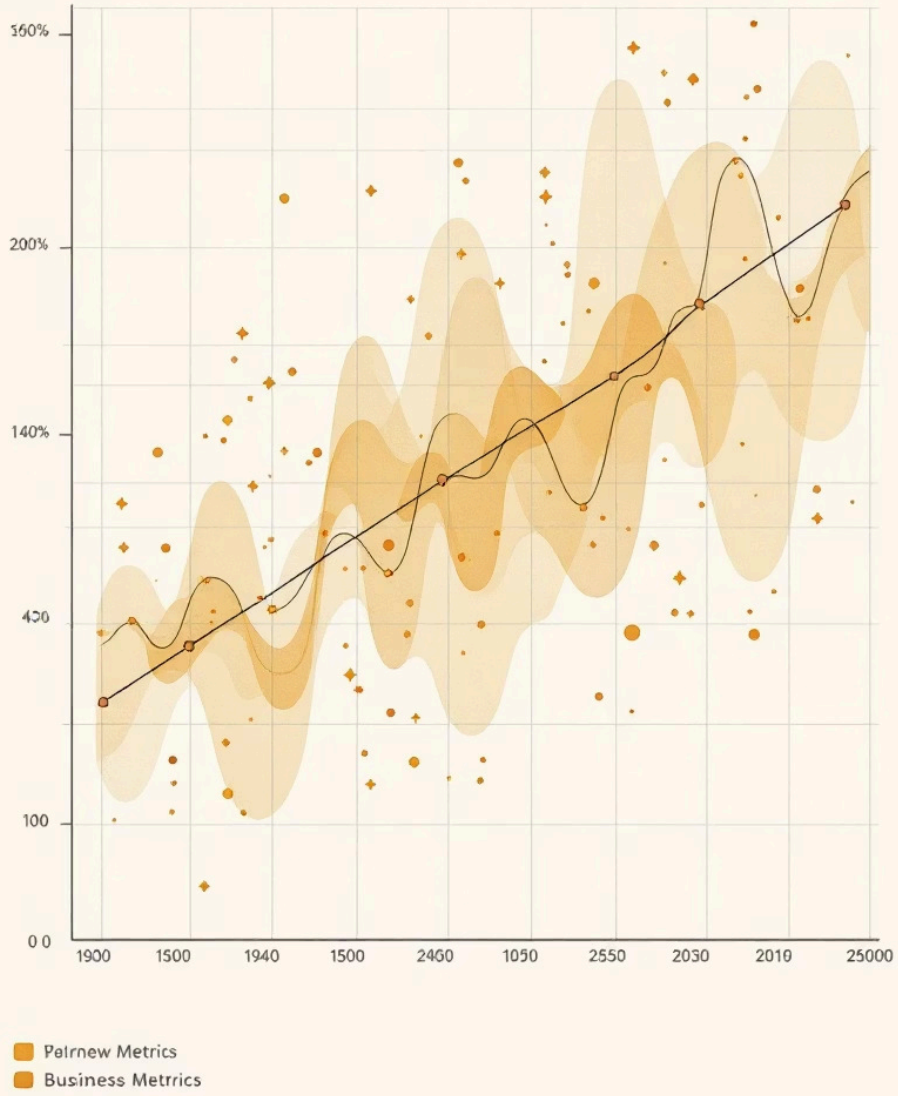
Zero sales quantity on multiple items signals obsolete or misplaced stock requiring immediate attention.

Pricing Inconsistencies

Wide gaps between mean and maximum values for purchase price, sale price, and freight costs indicate outliers.

Turnover Extremes

Stock turnover ranges from zero to 274.5, showing some items sell rapidly while others remain untouched.



Correlation Analysis

Pricing Impact

Product pricing shows minimal influence on revenue or profit. Higher selling prices tend to reduce margins due to competitive pressures.

Inventory Movement

Strongest relationship exists between purchase quantity and sales quantity, confirming inventory moves as expected.

Turnover Paradox

Turnover speed shows almost no link to profitability—fast-moving products aren't always the most profitable.

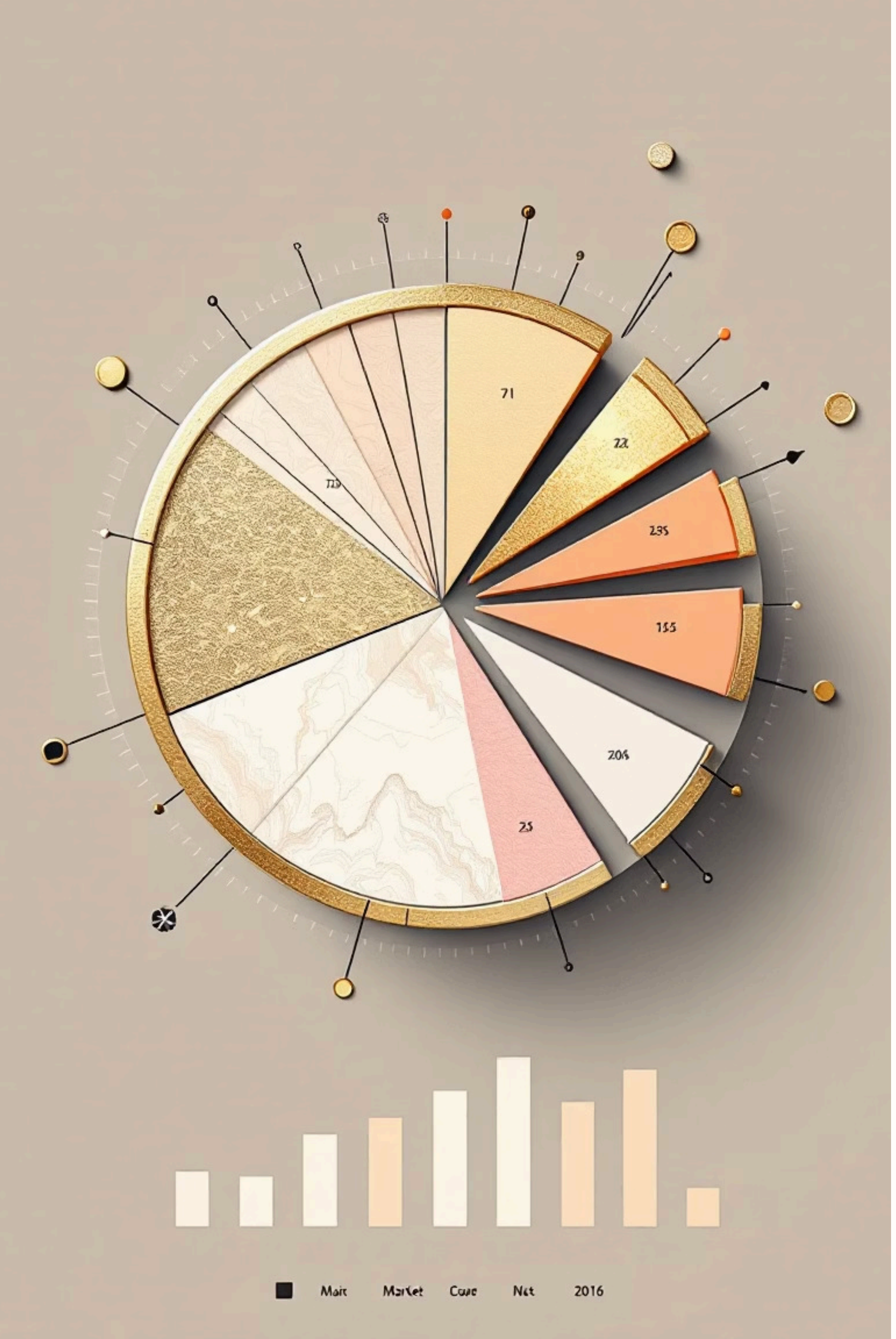
Hidden Growth Opportunity

198 Brands

High-margin, low-volume brands delivering strong profitability but minimal sales. These represent untapped growth potential.

198	66%
Target Brands	**Average Margin**
Products with profit margins above 60% but sales under $10K	Strong profitability maintained despite low volume

With targeted marketing or calibrated pricing adjustments, these brands can drive higher sales while preserving profitability.



Market Concentration

Top Vendor

Diageo North America leads with $67.99M in sales, significantly ahead of competitors.

Top Brand

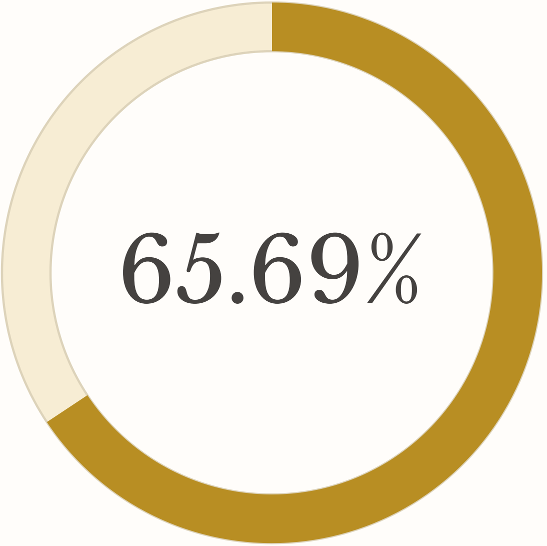
Jack Daniel's No. 7 dominates brand-level performance at $7.96M in sales.

Strategic Focus

Concentration shows where customer demand is strongest and partnerships most valuable.

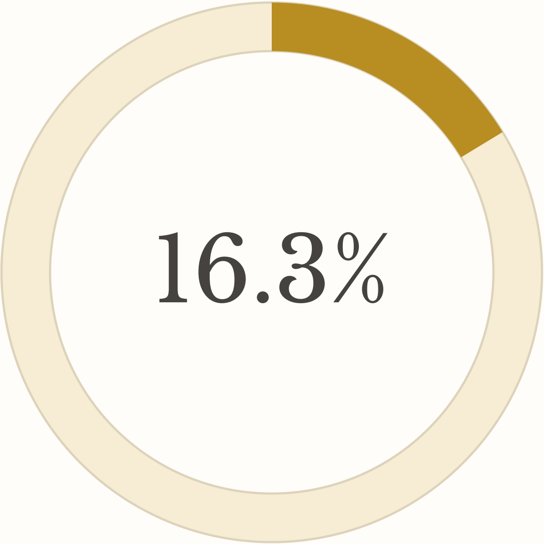
Top 10 vendors account for majority of revenue. Martignetti Companies ($39.33M), Pernod Ricard USA ($32.06M), and Jim Beam Brands ($31.42M) follow as key contributors.

Procurement Risk Exposure



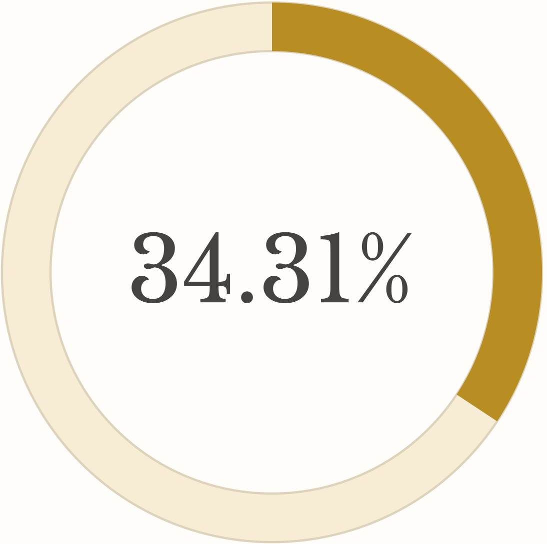
Vendor Concentration

Total purchases from top 10 vendors



Single Vendor Share

Diageo's contribution to total procurement

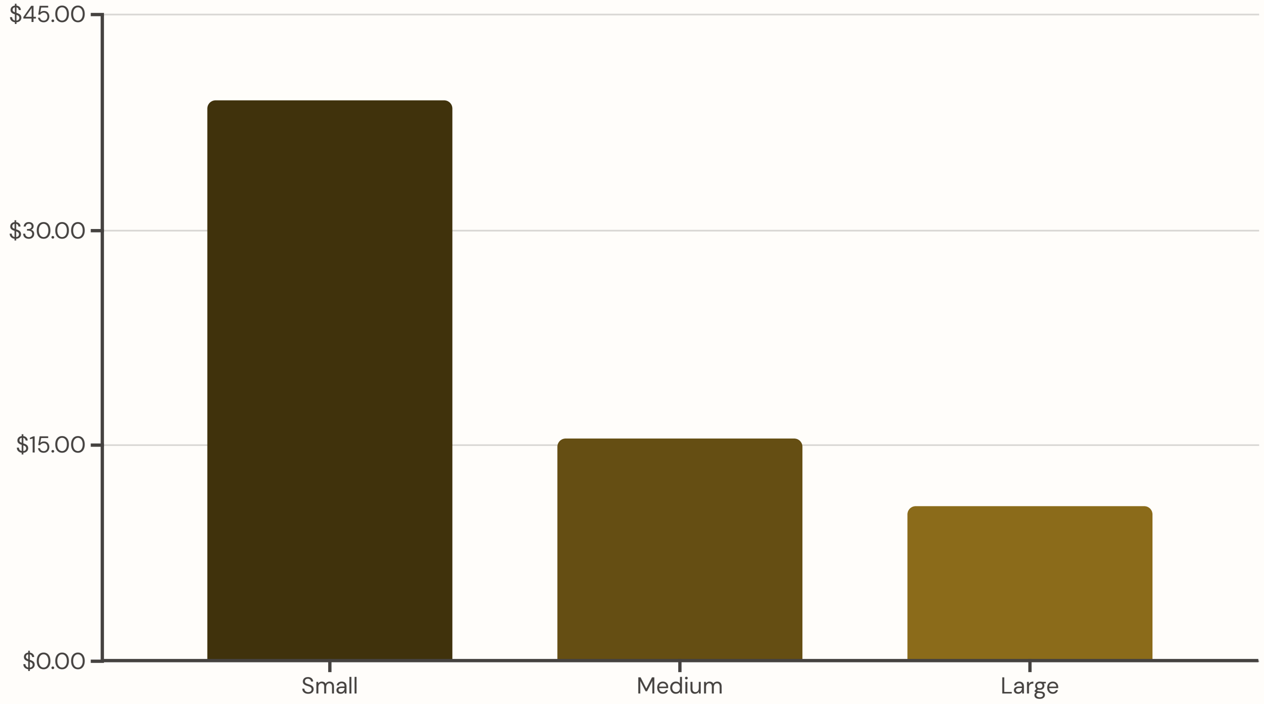


Remaining Vendors

All other suppliers combined

Heavy reliance on few suppliers creates vulnerability. Supply disruptions from any top vendor could significantly impact operations. Broadening the vendor base is essential for stability.

Bulk Purchasing Advantage



Cost Efficiency

Large orders achieve 72% lower unit costs compared to small purchases.

Strategic bulk buying at $10.78 per unit represents the most cost-efficient purchase approach.

Inventory Capital Crisis

$2.71M

Capital locked in unsold inventory, creating storage pressure and limiting working capital availability.

26.6%

Diageo Inventory

$722K unsold value

20.4%

Jim Beam Inventory

$555K unsold value

17.3%

Pernod Ricard

$471K unsold value

Top three vendors hold 64% of unsold inventory value. Improved demand planning and adjusted ordering required.

Strategic Recommendations

01

Activate High-Margin Brands

Launch targeted marketing for 198 low-volume, high-margin brands to unlock growth without sacrificing profitability.

02

Diversify Vendor Base

Reduce 65.69% concentration risk by expanding supplier partnerships and negotiating with alternative vendors.

03

Optimize Bulk Purchasing

Leverage 72% cost savings from large orders while avoiding overstocking through improved demand forecasting.

04

Address Inventory Buildup

Free $2.71M in working capital through clearance strategies, adjusted purchase quantities, and improved storage planning.

05

Balance Vendor Profitability

Improve pricing for high-volume vendors (30.7-31.6% margins) and expand distribution for low-volume vendors (40.5-42.6% margins).