

Summer MGMT 59000: AI-Assisted Big Data Analytics in the Cloud * Group: **DN3**
Assignment 1: Team Collaborative Analysis
Using Cloud Data Lakes for Business Intelligence

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Integrated_Analysis

How Individual Findings Connect

The functional analyses reveal a coherent narrative of a business with strong performance drivers that might be adversely impacted by systematic inefficiencies. The sales analysis identified city and manufacturer as key performance drivers, which is consistent with the regional analysis showing West and East regions' superior performance and the product analysis highlighting manufacturer-specific profit variations.

The customer behavior findings provide the mechanism explaining this geographic concentration: Champion customers, who drive the highest monetary value, are likely concentrated in these high-performing regions. This creates a reinforcing cycle where successful regions attract and retain valuable customers, while underperforming regions struggle with both customer acquisition and retention.

The seasonality findings, though statistically inconclusive ($p=0.073$), consistently point toward Q4 peaks across sales, customer, and regional analyses. This suggests real seasonal patterns that, while not reaching statistical significance in individual analyses, represent genuine business opportunities when viewed holistically.

Cross-Functional Implications

Sales and Marketing Alignment

The convergence of sales analysis (city/manufacturer importance) and customer analysis (Champion concentration) indicates that marketing efforts should focus geographically rather than being spread uniformly across all markets. The seasonal trends suggest timing strategic campaigns around Q4 peaks.

Operations and Product Strategy

Regional analysis showing no correlation between shipping time and profitability, combined with product analysis revealing discount-driven profit erosion, suggests that operational efficiency gains should focus on pricing strategy rather than shipping optimization; the importance of manufacturer points to the importance of changes in procurement.

Finance and Strategic Planning

The customer concentration in high-value segments, combined with regional performance disparities, indicates significant business risk from over-reliance on specific markets and customer types. This requires strategic diversification planning while maximizing returns from current strengths.

Conflicting Findings and Resolution

Conflict 1: Sales Volume vs. Profitability

The product analysis reveals that high-sales categories (Tables, Bookcases) generate negative profits, while moderate-sales categories (Copiers, Phones) drive highest profits. This apparent contradiction resolves when considering the discount analysis: high-volume products are being sold at unsustainable discounts, creating an illusion of success while destroying value.

Resolution: Implement profit-per-unit metrics as primary performance indicators rather than sales volume alone.

Conflict 2: Regional Expansion vs. Consolidation

Sales analysis suggests opportunities in all regions, while regional analysis recommends focusing on West and East markets. Customer analysis shows potential in all regions but with varying value concentrations.

Resolution: Adopt a tiered regional strategy—maximize investment in West/East markets while implementing cost-reduction and efficiency programs in Central/South regions before considering market exit.

Conflict 3: Seasonal Impact Significance

Sales analysis shows seasonal patterns but without statistical significance, while customer behavior analysis confirms Q4 peaks in orders and monetary value.

Resolution: Treat seasonality as a real business pattern worthy of strategic planning, while acknowledging that the impact may be smaller than other drivers like geography and product mix.