ADVANCED DATA ANALYTICS IN SUPPLY CHAIN MANAGEMENT

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INTRODUCTION

-Dataset: 180,519 transactions, 118 unique products

-Tools: Python, pandas, seaborn, Streamlit

-Steps: Data cleaning → Dashboard visualization → RQ1–RQ4 interpretation

TOP PRODUCTS & REVENUE

-Top 3: Field & Stream Fire Safe ($756k), Rip Deck ($494k), Diamondback Bike ($427k)

-Outdoor & fitness = 40% of total profit

-Focus: Maintain inventory efficiency for key SKUs

SUPPLIER & QUALITY

-Supplier data inferred from shipment modes

-'Standard Class': longer lead time, low cost

-'First/Same Day': high reliability, higher cost

-Balanced logistics = quality & margin optimization

LOGISTICS & PERFORMANCE

-Shipping mode distribution: 60% Standard, 20% Second, 15% First, 5% Same Day

-Cost-efficiency dominates logistics decisions

-Recommendation: Hybrid model with expanded 'Second Class' use

CUSTOMER SEGMENTATION

-Consumer: 52% | Corporate: 30% | Home Office: 18%

-Corporate = stable contracts; Consumer = high volume

-Growth potential through loyalty programs and retention initiatives

CONCLUSIONS & RECOMMENDATIONS

- Few products drive most profitability
- Standard Class logistics are cost-effective but slow
- Diversify customer base & shipping modes
- Implement predictive KPIs & clustering for decision dashboards