KULTRA MEGA STORE INVENTORY ANALYSIS

A CAPSTONE PROJECT REPORT

BY

TERUNGWA EMMANUEL

DATA ANALYTICS

JULY 1, 2025

Acknowledgement

I would like to express my sincere gratitude to God Almighty for His grace and strength that enabled me to successfully complete this programme.

Special thanks go to my tutors and erudite data analytics wizards, Mr Temidayo TeeDee AYENI, Mr Femi Ayodele,and Mr Mushin whose tireless support and dedication contributed immensely to this achievement. My appreciation also goes to the entire staff of Digital Skillup Africa (DSA). I also owned my appreciation to Squad 2 Captain of Data Analytics Mr. Ayooluwa Arinde and my students' colleagues for their prayers and encouragement.

Finally, I extend my heartfelt appreciation to the CEO and the entire team at TeamO Digital Solutions for their unwavering support in ensuring I completed this programme.

Table Of Content

KMS Analysis Report

Executive Summary

This report presents a comprehensive analysis of the provided KMS sales data, addressing key business questions and offering actionable insights to optimize sales strategies, improve customer profitability, and enhance operational efficiency. The analysis covers various aspects of the business, including product performance, regional sales, customer segmentation, and shipping logistics. By leveraging the insights derived from this data, KMS can make informed decisions to drive revenue growth and strengthen customer relationships.

1. Introduction

In today's competitive business landscape, data-driven decision-making is paramount for sustained growth and success. This capstone project aims to analyze the sales data of KMS to identify trends, patterns, and opportunities that can inform strategic business initiatives. The dataset includes detailed information on orders, products, customers, and shipping, providing a rich foundation for in-depth analysis. The primary objective is to answer specific business questions posed by KMS management, thereby providing a clear roadmap for enhancing overall business performance.

2. Data Overview

The dataset used for this analysis, Kultra Mega Stores (KMS) - KMSSQLData.csv, contains a wide array of sales-related information from 2009 to 2012, Key columns include:

Row ID: Unique identifier for each record.

Order ID: Identifier for each order.

Order Date: Date when the order was placed.

Order Priority: Priority level of the order (e.g., Low, Medium, High, Critical, Not Specified).

Order Quantity: Number of units ordered.

Sales: Total sales amount for the order.

Discount: Discount applied to the order.

Ship Mode: Method of shipping (e.g., Regular Air, Express Air, Delivery Truck).

Profit: Profit generated from the order.

Unit Price: Price per unit of the product.

Shipping Cost: Cost incurred for shipping the order.

Customer Name: Name of the customer.

Province: Province where the customer is located.

Region: Geographical region of the customer.

Customer Segment: Segment to which the customer belongs (e.g., Small Business, Consumer, Corporate, Home Office).

Product Category: Broad category of the product.

Product Sub-Category: Specific sub-category of the product.

Product Name: Name of the product.

Product Container: Type of container used for the product.

Product Base Margin: Base margin of the product.

Ship Date: Date when the order was shipped.

This dataset provides a comprehensive view of KMS's sales operations, enabling a detailed examination of various business facets.

3. Analysis and Findings

This section presents the findings from the data analysis, addressing each of the business questions outlined in the project scope. The analysis was performed using the business analytical tool SQL SERVER.

3.1. Top Product Category by Sales

Identifying the top-performing product categories is crucial for strategic inventory management and marketing efforts. The analysis reveals the following:

Finding: The top product category with the highest sales is Technology.

Below is the SQL query to find that.

```
-- top product category with the highest sales (comment)

SELECT TOP 1 [Product_Category],

SUM([Sales]) AS TotalSales

FROM KMSSQLData

GROUP BY [Product_Category]

ORDER BY TotalSales DESC;
```

This indicates that Technology products are the primary revenue drivers for KMS with total sales of $5 984 248.182

3.2. Regional Sales Performance

Understanding regional sales performance helps in allocating resources effectively and tailoring marketing strategies to specific geographical areas. The analysis identified the top 3 and bottom 3 regions in terms of sales:

Finding: Top 3 Regions by Sales are West **($3 597 549.2755),** Ontario **($3 063 212.4795**) and Prarie **($2 837 304.6015)**

Bottom 3 Regions by Sales are Nunavut **($116 376.4835).** Northwest Territories **($800 847.3295)** and Yukon **($975 867.371)**

These findings highlight significant disparities in sales performance across regions. The West, Ontario, and Prarie regions are strongholds for KMS, while the Northern territories (Yukon, Northwest Territories, Nunavut) represent areas with lower sales. This suggests a need for targeted strategies to boost sales in underperforming regions, potentially through localized marketing campaigns or adjustments to product offerings.

3.3. Total Sales of Appliances in Ontario

A specific inquiry was made regarding the sales performance of appliances in the province of Ontario. The finding shows that the total sales of appliances in Ontario is **$202 346.84**

This specific data point can be used for regional sales targets and inventory planning for appliance products within Ontario.

3.4. Bottom 10 Customers by Sales and Revenue Enhancement Strategies

Understanding the lowest-contributing customers is vital for developing strategies to improve their engagement and spending. The analysis identified the bottom 10 customers by sales:

The analysis find the bottom 10 customers by sales are:

Jeremy Farry	$85.72
Natalie Decherney	$125.90
Nicole Fjeld	$153.03
Katrina Edelman	$180.76
Dorothy Dickinson	$198.08
Christine Kargatis	$293.22
Eric Murdock	$343.328
Chris Mcafee	$350.18
Rick Huthwaite	$415.82

Mark Hamilton	$450.99

3.5. Most Costly Shipping Method

Optimizing shipping costs is essential for improving profit margins. The analysis identified the shipping method with the highest incurred cost:

The shipping method with the most shipping cost is Delivery Truck **($51 971.939)**

This finding is significant because while Delivery Truck might be a frequently used option, its cumulative cost is the highest. KMS should investigate the volume of shipments via Delivery by Truck and explore opportunities for cost reduction, such as negotiating better rates with carriers, optimizing package sizes, or encouraging customers to choose more economical shipping options when order priority allows.

3.6. Most Valuable Customers and Their Product Preferences

Identifying and understanding the most valuable customers is key to nurturing long-term relationships and maximizing lifetime value. The analysis identified the top 10 most valuable customers by sales and the products they typically purchase:

Finding: The top 10 most valuable customers are:

Customers	TotalSales	TotalProfit
Emily Phan	$117 124.438	$34 005.44
Deborah Brumfield	$97 433.1355	$31 121.22
Roy Skaria	$92 542.153	$1 343.94
Sylvia Foulston	$88 875.7575	$5 141.90
Grant Carroll	$88 417.0025	$27 977.29
Alejandro Grove	$83 561.93	$20 588.92
Darren Budd	$81 577.3435	$1 857.66
Julia Barnett	$80 044.452	$1 956.09
John Lucas	$79 696.1875	$12 725.08
Liz Mackendrick	$76 306.4315	$20 397.24

These customers generally show a strong preference for Technology and Furniture products, particularly Office Machines, Chairs & Chairmats, Bookcases, and Tables. Some also frequently purchase Binders and Binder Accessories and Storage & Organization within Office Supplies.

Insights: These valuable customers are investing in higher-ticket items and essential office infrastructure. KMS should prioritize retaining these customers through excellent service, personalized offers on new technology and furniture, and exclusive previews of high-value products. Loyalty programs and dedicated account management could further solidify these relationships.

3.7. Small Business Customer with Highest Sales

Focusing on specific customer segments can reveal unique opportunities. The analysis identified the small business customer with the highest sales:

The analysis finding shows that the small business customer with the highest sales is Dennis Kane with sales of **$75 967.5905.** He represents a highly successful small business client for KMS.

3.8. Corporate Customer with Most Orders (2009-2012)

Analyzing order frequency within specific segments and timeframes provides insights into consistent engagement. The analysis identified the corporate customer who placed the most orders between 2009 and 2012:

The analysis finds out that corporate customer who placed the most orders between 2009 and 2012 is Adam Hart with 18 orders.

Adam Hart's consistent ordering behavior indicates a strong and reliable corporate relationship. KMS should ensure continued satisfaction for this customer and explore opportunities for expanding their business, potentially through upselling or cross-selling additional services or products relevant to corporate needs.

3.9. Most Profitable Consumer Customer

Profitability is a key metric for evaluating customer value in any business. The analysis identified the consumer customer who was the most profitable. Emily Phan with a profit of **$34 005.44** and Emily Phan represents an ideal consumer customer for KMS. Understanding her purchasing habits, product preferences, and engagement patterns can help KMS identify and target similar high-profit consumer segments.

3.10. Customers with Low Profit or Loss (Indicating Returns)

Identifying customers associated with low or negative profit margins can indicate issues such as frequent returns or high service costs. The analysis identified customers with low profit or loss:

The analysis finding reviews that there are 308 customers with low or negative profit, potentially indicating returns or high service costs. Some examples include:

Julia West (Home Office): -$13 057.20

Laurel Workman (Home Office): -$12 587.05

Adrian Barton (Small Business): -$11 853.03

Dave Kipp (Consumer): -$11 116.83

Lauren Leatherbury (Home Office): -$10 783.23

Insights and Recommendations: The presence of a significant number of customers with negative profit suggests a need for further investigation into return policies, product quality, or customer service issues. KMS should:

1Investigate the primary reasons for returns among these customers. This could involve analyzing product categories, specific product defects, or discrepancies between product descriptions and actual items.

2.Review Return Policy: Evaluate if the current return policy is contributing to excessive returns or if it needs adjustments to balance customer satisfaction with business profitability.

3.Improve Product Quality/Descriptions: If product defects or misrepresentations are common, address these issues with suppliers or improve product descriptions to set accurate customer expectations.

4.Targeted Interventions: For customers with consistently negative profit, consider targeted interventions to understand their dissatisfaction and potentially offer alternative solutions or products.

5.Segment-Specific Analysis: Conduct a deeper dive into the customer segments with higher instances of negative profit (e.g., Home Office, Small Business) to identify segment-specific challenges.

Addressing these issues can significantly improve overall profitability and reduce operational overhead associated with returns.

3.11. Shipping Cost Analysis by Order Priority and Ship Mode

An in-depth analysis of shipping costs based on order priority and shipping mode provides critical insights for logistics optimization.

The analysis of shipping costs by order priority and ship mode reveals the following findings;

Order Priority	Ship Mode	Total Orders	Total Shipping Cost	Avg Shipping Cost
Critical	Delivery Truck	228	$10,784	$47.30
Critical	Express Air	200	$1,742	$8.71
Critical	Regular Air	1,179	$8,587	$7.28
High	Delivery Truck	248	$11,207	$45.19
High	Express Air	212	$1,454	$6.86
High	Regular Air	1,308	$10,005	$7.65
Low	Delivery Truck	250	$11,132	$44.53
Low	Express Air	190	$1,552	$8.17
Low	Regular Air	1,280	$10,264	$8.02
Medium	Delivery Truck	205	$9,462	$46.15
Medium	Express Air	201	$1,634	$8.13
Medium	Regular Air	1,225	$9,419	$7.69
Not Specified	Delivery Truck	215	$9,388	$43.67
Not Specified	Express Air	180	$1,470	$8.17
Not Specified	Regular Air	1,277	$9,734	$7.62

The analysis highlighted the following Insights:

1.Delivery Truck consistently has the highest average shipping cost across all order priorities. This is expected due to the nature of this shipping method, likely used for larger or heavier items.

2.Regular Air has the highest total shipping cost across all order priorities, primarily due to the sheer volume of orders shipped through this method. While its average cost per shipment is lower than Delivery Truck, its high usage makes it the most expensive overall.

3.Express Air generally has a higher average shipping cost than Regular Air, but its total cost is significantly lower due to fewer shipments.

Order Priority and Shipping Method Alignment: The data suggests that high and critical priority orders do utilize faster (and often more costly) methods like Delivery Truck and Express Air, while low priority orders still frequently use Regular Air.

Recommendations from the findings;

1.Negotiate with Carriers: Given the high volume of Regular Air shipments, KMS should negotiate better rates with its carriers for this shipping mode.

2.Optimize Shipping Choices: For low and medium priority orders, KMS managements should explore if customers can be incentivized to choose slightly slower but more cost-effective shipping options, or if there are opportunities to consolidate shipments.

3.Analyze Item Characteristics: Investigate the types of products typically shipped via Delivery Truck to understand if alternative shipping methods or packaging could reduce costs for certain items.

4.Dynamic Shipping Options: KMS should implement a system that dynamically suggests the most cost-effective shipping option to customers based on order priority, product size/weight, and delivery timeframe.

Conclusion.

This capstone project has provided valuable insights into KMS's sales data, addressing key business questions and offering actionable recommendations. The analysis highlighted the dominance of technology products, regional sales disparities, opportunities to re-engage low-value customers, and areas for shipping cost optimization. By implementing the suggested strategies, KMS can enhance its sales performance, improve customer relationships, and increase profitability.

Future Work:

1.Predictive Analytics: Develop predictive models to forecast future sales, identify potential customer churn, or predict product demand.

2.Customer Lifetime Value (CLTV) Analysis: Conduct a deeper analysis of CLTV to identify and prioritize customers with the highest long-term value.

3.Market Basket Analysis: Perform market basket analysis to identify product associations and develop effective cross-selling and up-selling strategies.

4.Dashboard Development: Create interactive dashboards to provide real-time insights to KMS management, enabling continuous monitoring of key performance indicators.

By continuing to leverage data analytics, KMS can maintain its competitive edge and drive sustainable growth in the market.