DATA ANALYSIS REPORT

SALES PERFORMANCE

2018-2022

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EXECUTIVE SUMMARY

This report evaluates Rainbow Retail's sales performance from 2018 to 2022. The analysis, based on synthetic data, highlights key trends and offers actionable insights to optimise future business strategies. Key findings include a consistent upward trend in sales and revenue, with technology products leading the market share. Strategic recommendations are provided to enhance product portfolio, marketing strategies, and regional sales efforts, aligned with broader business goals such as market expansion, product diversification and customer retention.

1. INTRODUCTION

Rainbow Retail, a South African e-commerce retailer specialising in office supplies, furniture and technology products, aims to leverage data insights to refine its sales strategy and improve market position. This report outlines the current sales performance and identifies strategic opportunities for growth and optimisation.

2. PROBLEM STATEMENT

Rainbow Retail faces several key challenges that hinder its ability to fully capitalise on its market opportunities. The primary issues include:

- Product Portfolio Imbalance: There is a noticeable imbalance in the revenue contribution from different product categories, with technology products significantly outperforming others like furniture. This raises concerns about over-reliance on a limited range of products.
- Geographical Sales Disparity: Sales are heavily concentrated in a few provinces, suggesting that other regions may be under-served or overlooked, potentially limiting overall market penetration and growth.
- Customer and Market Insights: There is a need for deeper understanding of customer behaviour and market trends, which is crucial for developing targeted marketing strategies and optimising the product portfolio.

3. DATA OVERVIEW

Synthetic data is used and the schema comprises four primary entities: Customers, Sales, Products and Calendar. This design allows for comprehensive tracking and analysis of sales transactions, customer information, product details and temporal data.
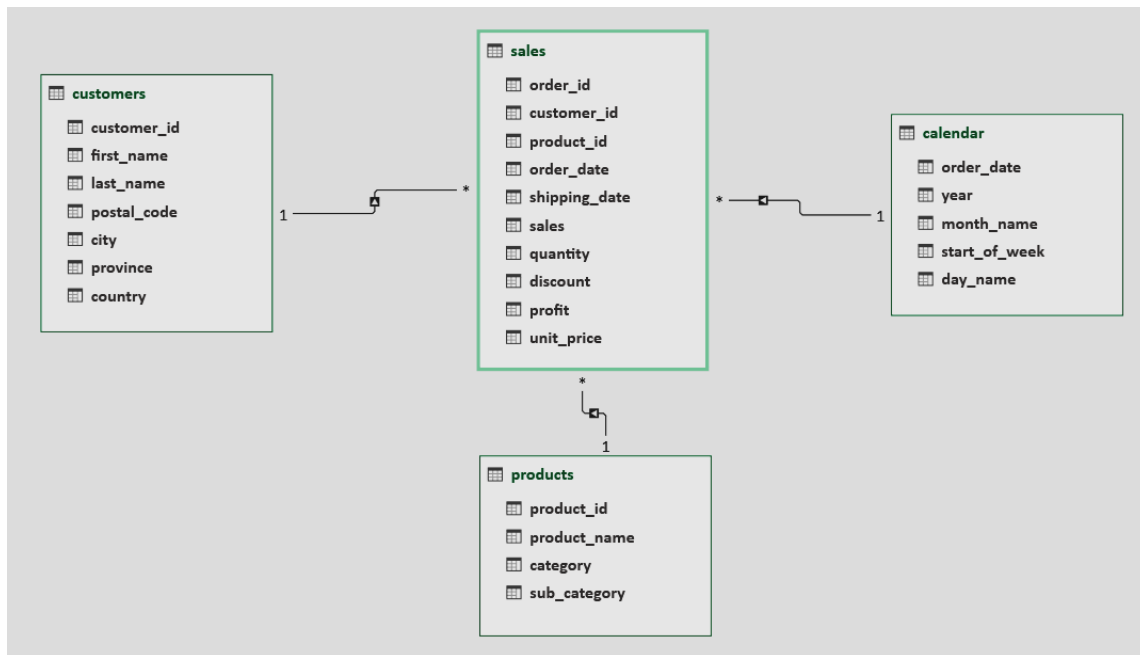
Key aspects:

- The Customers table stores essential customer details, enabling customer segmentation and targeted marketing analyses.
- The Sales table serves as the central repository for transaction data, linking customers to products and capturing crucial sales metrics like quantity, profit, and discounts.
- The Products table categorises the item inventory, supporting product performance evaluations.
- The Calendar table facilitates time-based analyses, allowing for trend identification across various time frames.

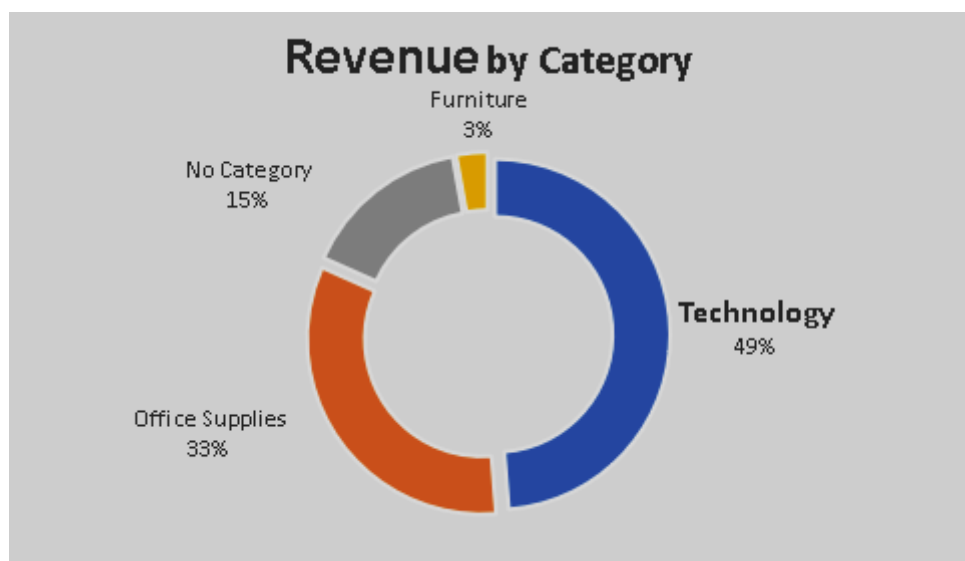*Time Frame*: 01 January 2018 – 31 December 2022

4.   ANALYSIS

a.   Sales and Revenue Growth Trend
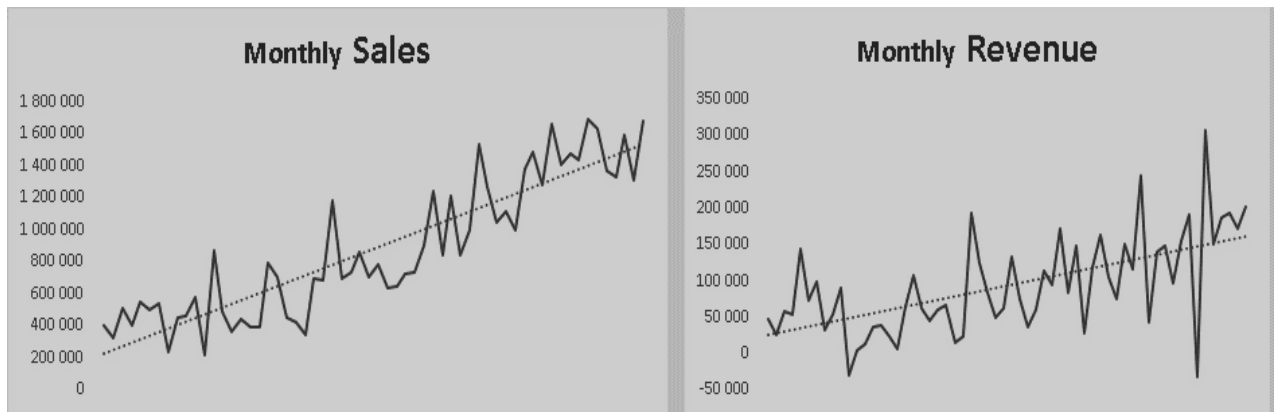
- Insight: A general upward trajectory in monthly sales and revenue indicates robust growth.
- Strategic Goal: **Market Expansion**. Capitalise on the growth trend by exploring new market segments and expanding product lines to maintain momentum.

b.   Product Category Performance

- Insight: Technology products dominate with 49% of total revenue, while the furniture category underperforms at 3%.
- Strategic Goal: **Product Diversification**. Expand the range of technology products and enhance the promotion of underperforming categories like furniture to reduce dependency on a few product lines.

c.   Top-Selling Products

- <u>Insight</u>: A few key products, like the High-Speed Automatic Electric Letter Opener, drive significant sales.
- <u>Strategic Goal</u>: **Revenue Maximisation**. Develop upselling and cross-selling strategies around these top-performing products to boost the Average Order Value (AOV) and overall revenue.

d. **Sales by Province**
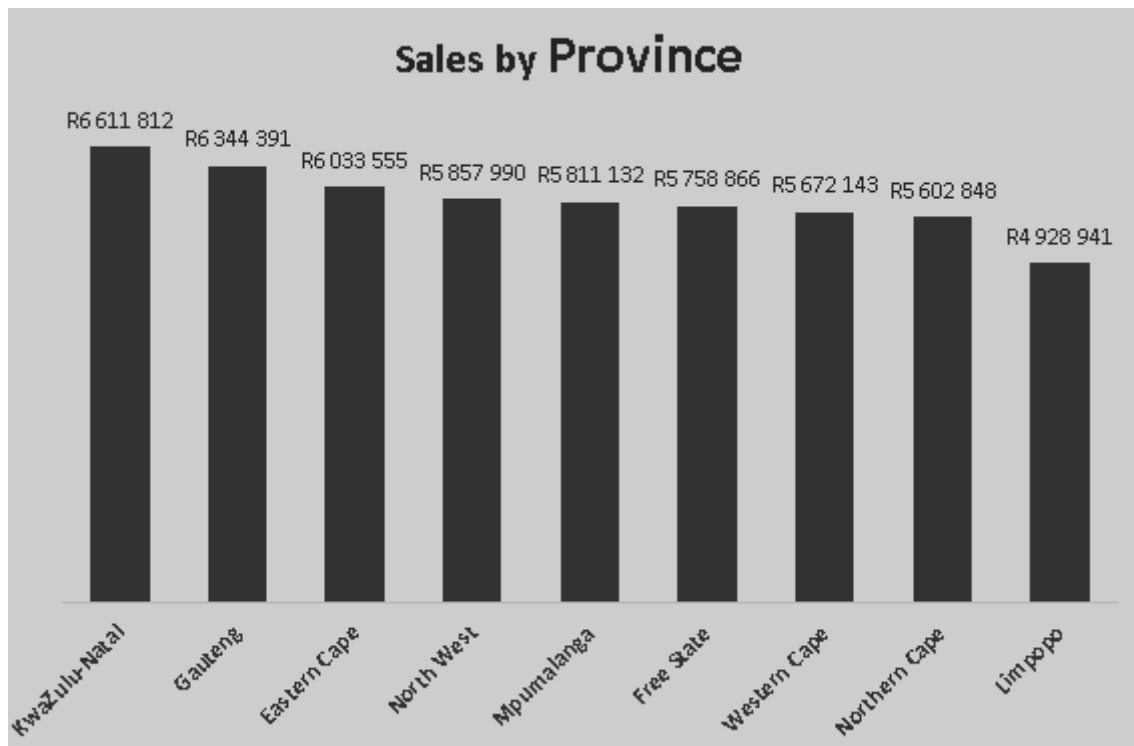
- Insight: KwaZulu-Natal, Gauteng, and Eastern Cape are leading markets, with potential growth opportunities in Limpopo and Northern Cape.
- Strategic Goal: **Geographical Expansion**. Focus marketing efforts on underperforming regions to balance sales distribution and enhance overall market penetration.

e. **Average Order Value (AOV)**

- Insight: The AOV stands at R4,467, providing insights into purchasing behaviour.
- Strategic Goal: **Customer Retention and Value Enhancement**. Implement targeted marketing campaigns and "*smart shopper*" programmes to encourage higher spending and repeat purchases.

5. RECOMMENDATIONS

Product Portfolio Optimisation

- Expand the technology product line and consider strategic partnerships to boost the furniture category.
- Investigate unclassified products to identify emerging market trends and opportunities for new product categories.

Sales and Marketing Strategy Enhancement

- Intensify marketing efforts in high-performing regions and develop targeted campaigns in regions with growth potential.
- Use insights from AOV analysis to tailor product bundles and promotional offers.

Data Analysis and Reporting Enhancement

- Improve data categorisation to ensure accurate reporting and deeper customer behaviour analysis, aiding in more informed strategic decisions.

6. ASSUMPTIONS

Data Completeness: The significant portion of revenue from 'unclassified' categories (15%) suggests potential issues with product categorisation or data entry processes. This could lead to incomplete insights about true category performance.

7. TECHNICAL

- Utilised advanced Excel features, including Power Query and Power Pivot, for data extraction, transformation and loading (ETL).
- Used Power Query for initial data cleaning tasks such as filtering, merging and reshaping data.
- Employed Power Pivot to create data model and facilitate advanced exploratory data analysis (EDA) through interactive pivot tables and charts.
- Utilised MySQL for querying the database, enabling sophisticated data manipulation and extraction of insights using SQL.

8.   CONCLUSION

By implementing these strategic recommendations, Rainbow Retail can enhance its sales performance, optimise product offerings and strengthen its market presence. Aligning data insights with strategic business goals ensures sustained growth and competitive advantage in the South African e-commerce market.

9.   APPENDIX: AD-HOC QUERIES

The SQL snippets below answer some common business questions asked by managers.

```
-- Query 1: Top Products by Total Sales Amount


WITH ProductSales AS (

    SELECT p.product_name, SUM(s.sales) AS total_sales

    FROM sales s

    JOIN Products p ON s.product_id = p.product_id

    GROUP BY p.product_name
)
SELECT product_name, total_sales,

      RANK() OVER (ORDER BY total_sales DESC) AS sales_rank

FROM ProductSales;
```

Output 1:

product_name	total_sales	sales_rank
High Speed Automatic Electric Letter Opener	1466247	1
Cisco Telepresence System Ex90 Videoconferen...	1256436	2
Canon Imageclass 2200 Advanced Copier	971246	3
Hp Designjet T520 Inkjet Large Format Printer -...	631308	4
Martin Yale Chadless Opener Electric Letter Ope...	573140	5
Fellowes Pb500 Electric Punch Plastic Comb Bind...	569022	6
Riverside Palais Royal Lawyers Bookcase	558375	7
Samsung Galaxy Mega 6.3	548549	8
Dmi Eclipse Executive Suite Bookcases	522724	9
Hon 4070 Series Pagoda Armless Upholstered S...	463601	10

```
-- Query 2: Customer Ranking by Total Purchase Amount


WITH CustomerSales AS (

    SELECT    c.customer_id,    CONCAT(c.first_name,    '   ',    c.last_name)    AS
customer_name, SUM(s.sales) AS total_purchase

    FROM Sales s

    JOIN Customers c ON s.customer_id = c.customer_id

    GROUP BY c.customer_id, customer_name

)

SELECT customer_id, customer_name, total_purchase,

        RANK() OVER (ORDER BY total_purchase DESC) AS purchase_rank

FROM CustomerSales;
```

Output 2:

customer_id	customer_name	total_purchase	purchase_rank
457	Herbert Nixon	526777	1
82	Rutherford Truman	486777	2
58	Calvin Polk	449784	3
690	Rutherford Coolidge	431336	4
488	Harry Ford	422916	5
444	John Van Buren	342772	6
295	Woodrow Truman	312325	7
9	Calvin McKinley	278577	8
348	John Hoover	257412	9
382	Benjamin Harding	249757	10
11	Ulysses Harding	244005	11

```
-- Query 3: Products with Sales Above Average


SELECT p.product_id, p.product_name, SUM(s.sales) AS total_sales

FROM Sales s

JOIN Products p ON s.product_id = p.product_id

GROUP BY p.product_id, p.product_name

HAVING SUM(s.sales) > (

    SELECT AVG(total_sales) FROM (

        SELECT SUM(s.sales) AS total_sales

        FROM Sales s

        JOIN Products p ON s.product_id = p.product_id

        GROUP BY p.product_id

    ) subquery

);
```

Output 3:

product_id	product_name	total_sales
367	Xerox 1908	40391
393	Fellowes Bankers Box Staxonsteel Drawer File/S...	53854
54	At&T Cl83451 4-Handset Telephone	92985
542	Office Star - Mesh Screen Back Chair With Vinyl ...	54278
1210	Novimex Fabric Task Chair	39261
408	Hon 4700 Series Mobuis Mid-Back Task Chairs W...	138300
575	Bush Andora Bookcase	103558
1341	Safco Mobile Desk Side File	37337
1295	Belkin 5 Outlet Surgemaster Power Centers	48984
1811	Zebra Gk420T Direct Thermal/Thermal Transfer ...	39057
65	Global Value Mid-Back Manager'S Chair	39314