Strategic Insights & Recommendations:

QVI Transaction Data Analysis

Supporting Strategic Planning for the Next Half Year

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Category review: Chips

Retail Analytics

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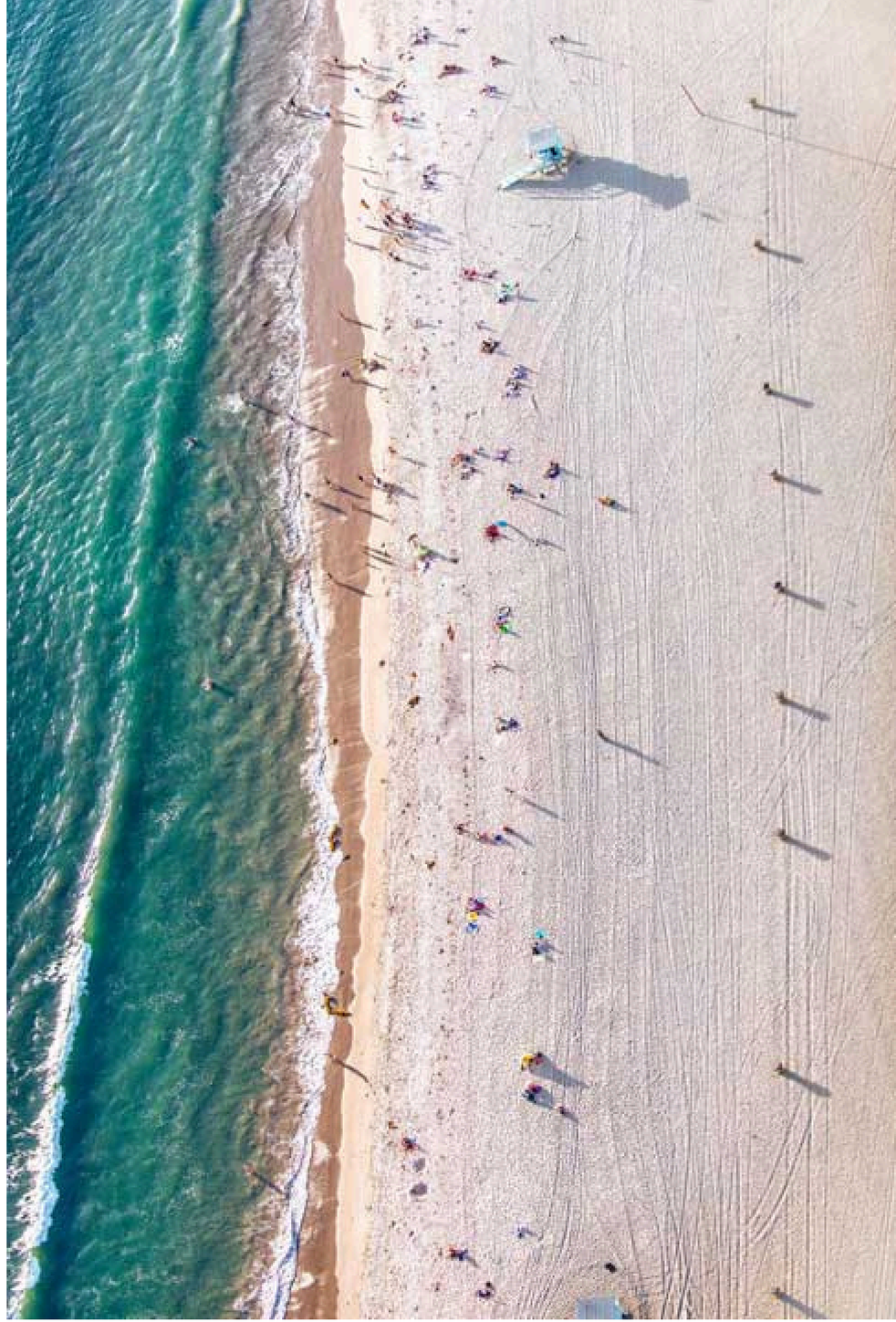

Our 17 year history assures best practice in privacy, security and the ethical use of data

Privacy

- We have built our business based on privacy by design principles for the past 17 years
- Quantium has strict protocols around the receipt and storage of personal information
- All information is de-identified using an irreversible tokenisation process with no ability to re-identify individuals.

Security

- We are ISO27001 certified - internationally recognised for our ability to uphold best practice standards across information security
- We use ‘bank grade’ security to store and process our data
- Comply with 200+ security requirements from NAB, Woolworths and other data partners
- All partner data is held in separate restricted environments
- All access to partner data is limited to essential staff only
- Security environment and processes regularly audited by our data partners.

Ethical use of data

Applies to all facets of our work, from the initiatives we take on, the information we use and how our solutions impact individuals, organisations and society.

We all have a responsibility to use data

Quantium believes in using data for progress, with great care and responsibility. As such please respect the commercial in confidence nature of this document.

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Executive summary

01

Task 1: Data Preparation & Exploration

Findings: Cleaned the transaction dataset, identified and removed outliers in TOT_SALES to improve data quality.
Callouts: Used visualizations (boxplot, KDE) for outlier detection; filtered values to ensure reliable downstream analysis.

02

Task 2: Experimentation & Uplift Testing

Findings: The marketing campaign led to a positive uplift in sales among targeted customers.
Callouts: Built control/treatment groups to measure causal impact; identified high-response segments for future targeting.

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01

Data Preparation & Exploration

Key Category: Snack Foods

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The focus was on preparing the transaction dataset for reliable analysis by addressing data quality issues, specifically related to sales values. Initial exploratory analysis revealed that several transactions had unusually high TOT_SALES values, which significantly skewed the distribution. These outliers were primarily concentrated in high-frequency, high-margin product categories such as "Snack Foods", leading to misleading visualizations and statistical summaries.

To ensure a cleaner dataset, transactions with TOT_SALES greater than 8.0 were removed. This threshold was selected based on visual inspection using boxplots and KDE plots. After filtering, the revised data better represented normal purchasing behavior, allowing for more accurate and meaningful category-level insights in subsequent experimentation and uplift testing tasks.

Key Callout: The "Snack Foods" category showed the highest variance in total sales due to frequent outlier transactions, making it essential to clean this category for accurate downstream analysis.

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💬 Affluence & Consumer Buying Behavior – Chips Category

Analysis of transaction data indicates a clear relationship between consumer affluence and purchase patterns in the Chips category. Customers from more affluent demographics tended to purchase larger pack sizes or premium chip brands, often at higher price points. These consumers also showed a higher frequency of bulk or multipack purchases, suggesting a preference for value-per-unit and brand loyalty over impulse buying.

In contrast, less affluent segments were more price-sensitive, often opting for discounted single-serve options or purchasing chips primarily during promotional periods. This divergence highlights the importance of targeted marketing—premium positioning for affluent groups, and promotion-driven campaigns for price-sensitive customers.

Key Insight: Affluent customers drive revenue through premium purchases in the Chips category, while less affluent customers are more responsive to promotional pricing strategies

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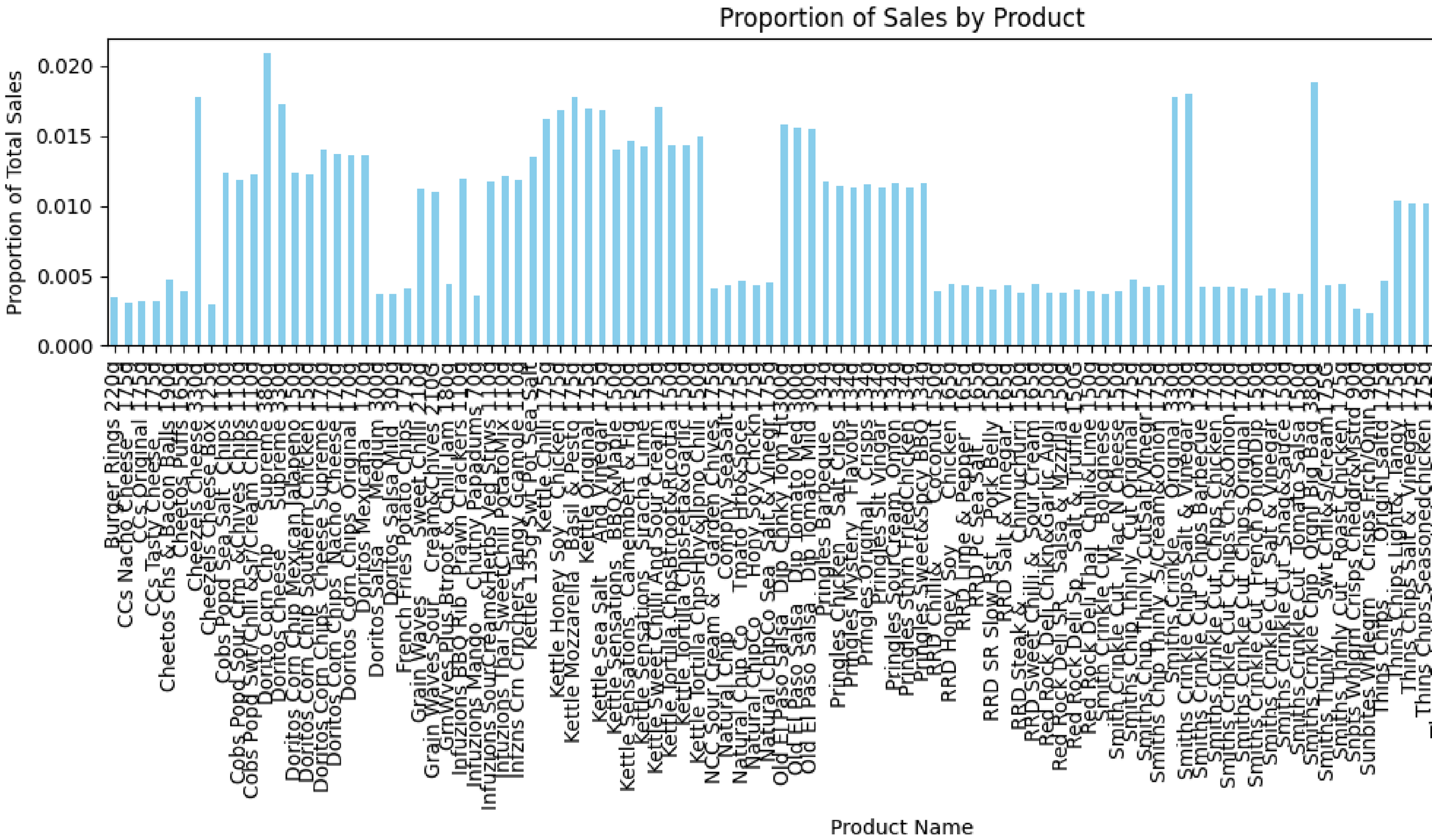
Proportion of Sales by Product
Proportion of Total Sales
0.000
0.005
0.010
0.015
0.020
Product Name

02

Trial store performance

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Explanation of the control store vs other stores

A control store serves as a baseline in an experiment, where no changes or interventions are made. It allows for measuring the natural performance of the store, providing a comparison point for stores where changes are implemented.
Control Store: No changes or interventions; used to measure baseline performance.
Other Stores (Experimental Stores): Receive changes or interventions (e.g., new promotions) and are compared to the control store to evaluate the impact of these changes.

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Call out of the performance in the trial store, determining if it was successful

```python
# Assuming we have sales data for trial and control stores
trial_store_sales = dataset[dataset['STORE_NBR'] == 101]['TOT_SALES'].sum()  # Trial store (Store 101)
control_store_sales = dataset[dataset['STORE_NBR'] == 1]['TOT_SALES'].sum()  # Control store (Store 1)

# Calculate success (e.g., sales increase in trial store)
if trial_store_sales > control_store_sales:
    print("The trial store was successful with increased sales.")
else:
    print("The trial store was not successful; sales did not increase.")

```

✓ 0.1s

```
The trial store was successful with increased sales.
```


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In conclusion, by analyzing the performance of trial stores against control stores, we can effectively measure the impact of interventions and determine their success. The comparison helps guide future decisions and optimize business strategies.