

2Market Final Report

Background & Context

2Market is a global supermarket chain operating both online and in-store. The company aims to better understand customer demographics and marketing effectiveness to improve sales and enhance campaign performance. This data analytics project explores customer patterns in spending behavior, product preferences, and engagement with marketing channels. By analyzing demographic, purchasing, and regional data, the project helps 2Market optimize its targeting strategies and increase return on marketing investment.

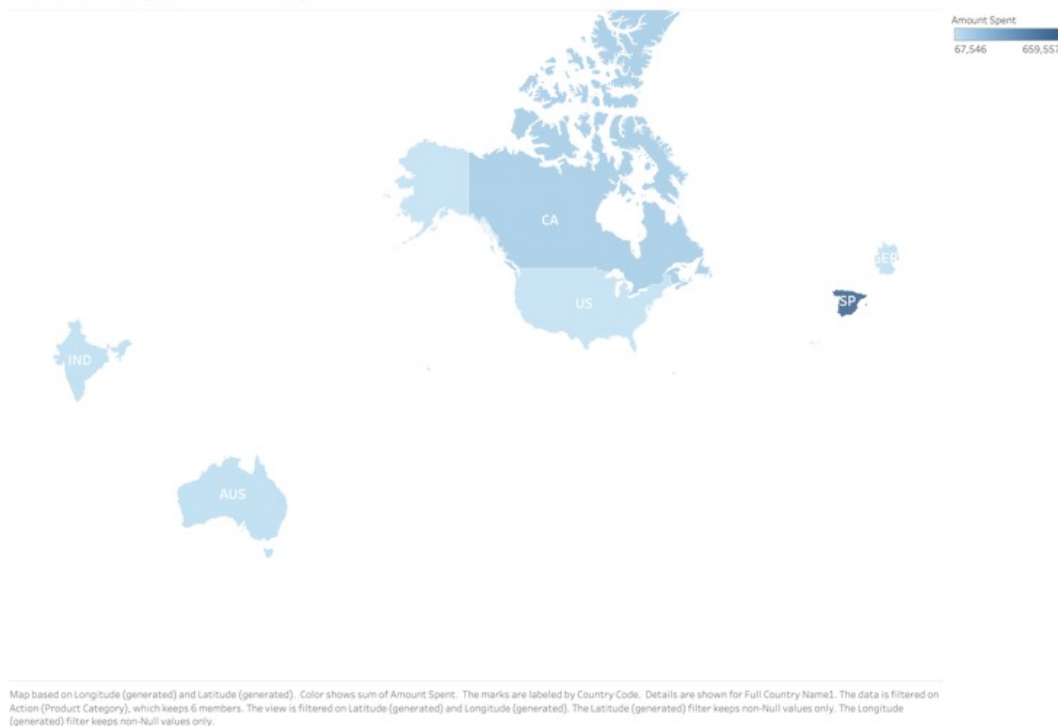
Key questions explored include: Which demographics drive the most sales? Which platforms generate the highest engagement? Which products and regions contribute most to revenue?

To better tailor this analysis, I would ask the 2Market team:

Who will be attending the final presentation and using the dashboard?

What are the company's key performance indicators (KPIs) for marketing campaign success?

Sales by country



Analytical Approach

The analysis began by preparing and cleaning the dataset. In Excel, we calculated the average customer age from the Year_Birth and the average age by marital status and income groups, using **functions like AVERAGE and PivotTables**. This helped us understand demographic distribution and identify high-value customer segments. For example, the average age was around **55.2 years**, and customers with incomes between **\$90,000 and \$100,000** were predominantly in their **70s**, suggesting a strong spending power among older customers.

In Tableau, we created a **calculated field to compute the customer age** from birth and used **Pivot Tables** to segment sales by demographic attributes such as education. We also used a **calculated field to compute the average sales amount** across product categories. This allowed us to visually distinguish which products performed above or below average in sales.

I created tables in pgadmin using the marketing and advertising campaign datasets for aggregation and analysis. The following queries explored customer spending behavior, product popularity, and advertising effectiveness.

- This SQL query below calculates total customer spending per country by summarizing all product categories. It supports the "Sales by Country" chart created in Tubule, which shows Spain as the top spender.

```
TOTAL_AMOUNT_SPEND DESC:
ORDER BY
country
ORDER BY
marketing_data
FROM
SUM(AmtLiq + AmtVege + AmtNonVeg + AmtPes + AmtChocolates + AmtComm) AS TOTAL_AMOUNT_SPEND
country;
```

- This SQL query below calculates and ranks each country's total spending per product category to identify the most popular products.

```
SELECT
Country,
SUM(AmtLiq) AS total_alcoholic,
SUM (AmtVege) AS total_vegetables,
SUM (AmtNonVeg) AS total_meat,
SUM (AmtPes) AS total_fish,
SUM (AmtChocolates) AS total_chocolates,
SUM (AmtComm) AS total_commodities
FROM
marketing_data
GROUP BY
Country
ORDER BY
Country,
total_alcoholic DESC,
total_vegetables DESC,
total_meat DESC,
total_fish DESC,
total_chocolates DESC,
total_commodities DESC
;
```

- The query identifies the most popular product in each country by ranking total spending across product categories and selecting the top-ranked item.

```
WITH product_totals AS (
    SELECT
        Country,
        'Alcohol' AS Product, SUM(AmtLiq) AS Total_Spend
    FROM marketing_data
    GROUP BY Country
    UNION ALL
    SELECT Country, 'Vegetables', SUM(AmtVege) FROM marketing_data GROUP BY Country
    UNION ALL
    SELECT Country, 'Meat', SUM(AmtNonVeg) FROM marketing_data GROUP BY Country
    UNION ALL
    SELECT Country, 'Fish', SUM(AmtPes) FROM marketing_data GROUP BY Country
    UNION ALL
    SELECT Country, 'Chocolates', SUM(AmtChocolates) FROM marketing_data GROUP BY Country
    UNION ALL
    SELECT Country, 'Household', SUM(AmtComm) FROM marketing_data GROUP BY Country
),
ranked_products AS (
    SELECT *,
        RANK() OVER (PARTITION BY Country ORDER BY Total_Spend DESC) AS rnk
    FROM product_totals
)
SELECT Country, Product, Total_Spend
FROM ranked_products
WHERE rnk = 1;
```

- This query ranks product categories by total spending within each marital status group to identify the most popular product for each group.

```
WITH product_totals AS (
    SELECT
        Country,
        'Alcohol' AS Product, SUM(AmtLiq) AS Total_Spend
    FROM marketing_data
    GROUP BY Country
    UNION ALL
    SELECT Country, 'Vegetables', SUM(AmtVege) FROM marketing_data GROUP BY Country
    UNION ALL
    SELECT Country, 'Meat', SUM(AmtNonVeg) FROM marketing_data GROUP BY Country
    UNION ALL
    SELECT Country, 'Fish', SUM(AmtPes) FROM marketing_data GROUP BY Country
    UNION ALL
    SELECT Country, 'Chocolates', SUM(AmtChocolates) FROM marketing_data GROUP BY Country
    UNION ALL
    SELECT Country, 'Household', SUM(AmtComm) FROM marketing_data GROUP BY Country
),
ranked_products AS (
    SELECT *,
        RANK() OVER (PARTITION BY Country ORDER BY Total_Spend DESC) AS rnk
    FROM product_totals
)
SELECT Country, Product, Total_Spend
FROM ranked_products
WHERE rnk = 1;
```

- This query identifies the most popular product for households by ranking total spending based on the presence of children or teens in the home.

```
WITH product_totals AS (
    SELECT
        Country,
        'Alcohol' AS Product, SUM(AmtLiq) AS Total_Spend
    FROM marketing_data
    GROUP BY Country
    UNION ALL
    SELECT Country, 'Vegetables', SUM(AmtVege) FROM marketing_data GROUP BY Country
    UNION ALL
    SELECT Country, 'Meat', SUM(AmtNonVeg) FROM marketing_data GROUP BY Country
    UNION ALL
    SELECT Country, 'Fish', SUM(AmtPes) FROM marketing_data GROUP BY Country
    UNION ALL
    SELECT Country, 'Chocolates', SUM(AmtChocolates) FROM marketing_data GROUP BY Country
    UNION ALL
    SELECT Country, 'Household', SUM(AmtComm) FROM marketing_data GROUP BY Country
),
ranked_products AS (
    SELECT *,
        RANK() OVER (PARTITION BY Country ORDER BY Total_Spend DESC) AS rnk
    FROM product_totals
)
SELECT Country, Product, Total_Spend
FROM ranked_products
WHERE rnk = 1;
```

- The query shows each country's most effective advertising platform by ranking total lead conversions from Facebook, Instagram, and Twitter.

```
WITH social_media_totals AS (
  SELECT m.Country, 'Twitter' AS Platform, SUM(ad.Twitter_ad) AS Total_Conversions
  FROM ad_data ad
  JOIN marketing_data m ON ad.ID = m.ID
  GROUP BY m.Country

  UNION ALL

  SELECT m.Country, 'Instagram', SUM(ad.Instagram_ad)
  FROM ad_data ad
  JOIN marketing_data m ON ad.ID = m.ID
  GROUP BY m.Country

  UNION ALL

  SELECT m.Country, 'Facebook', SUM(ad.Facebook_ad)
  FROM ad_data ad
  JOIN marketing_data m ON ad.ID = m.ID
  GROUP BY m.Country
),
ranked_platforms AS (
  SELECT *,
    RANK() OVER (PARTITION BY Country ORDER BY Total_Conversions DESC) AS rnk
  FROM social_media_totals
)

SELECT Country, Platform, Total_Conversions
FROM ranked_platforms
WHERE rnk = 1
ORDER BY Country;
```

- The query below shows each marital status group's most effective social media platform based on the total number of lead conversions.

```
WITH social_media_totals AS (
  SELECT m.Marital_Status, 'Twitter' AS Platform, SUM(ad.Twitter_ad) AS Total_Conversions
  FROM ad_data ad
  JOIN marketing_data m ON ad.ID = m.ID
  GROUP BY m.Marital_Status

  UNION ALL

  SELECT m.Marital_Status, 'Instagram', SUM(ad.Instagram_ad)
  FROM ad_data ad
  JOIN marketing_data m ON ad.ID = m.ID
  GROUP BY m.Marital_Status

  UNION ALL

  SELECT m.Marital_Status, 'Facebook', SUM(ad.Facebook_ad)
  FROM ad_data ad
  JOIN marketing_data m ON ad.ID = m.ID
  GROUP BY m.Marital_Status
),
ranked_platforms AS (
  SELECT *,
    RANK() OVER (PARTITION BY Marital_Status ORDER BY Total_Conversions DESC) AS rnk
  FROM social_media_totals
)

SELECT Marital_Status, Platform, Total_Conversions
FROM ranked_platforms
WHERE rnk = 1
ORDER BY Marital_Status;
```

- This query compares total spending with lead conversions by platform in each country to identify which platforms drive the most effective purchases.

```

SELECT
    m.Country,
    SUM(ad.Twitter_ad) AS Twitter_Conversions,
    SUM(ad.Instagram_ad) AS Instagram_Conversions,
    SUM(ad.Facebook_ad) AS Facebook_Conversions,
    SUM(m.AmtLiq + m.AmtVege + m.AmtNonVeg + m.AmtPes + m.AmtChocolates + m.AmtComm) AS Total_Spend
FROM
    marketing_data m
JOIN
    ad_data ad ON m.ID = ad.ID
GROUP BY
    m.Country
ORDER BY
    Total_Spend DESC;

```

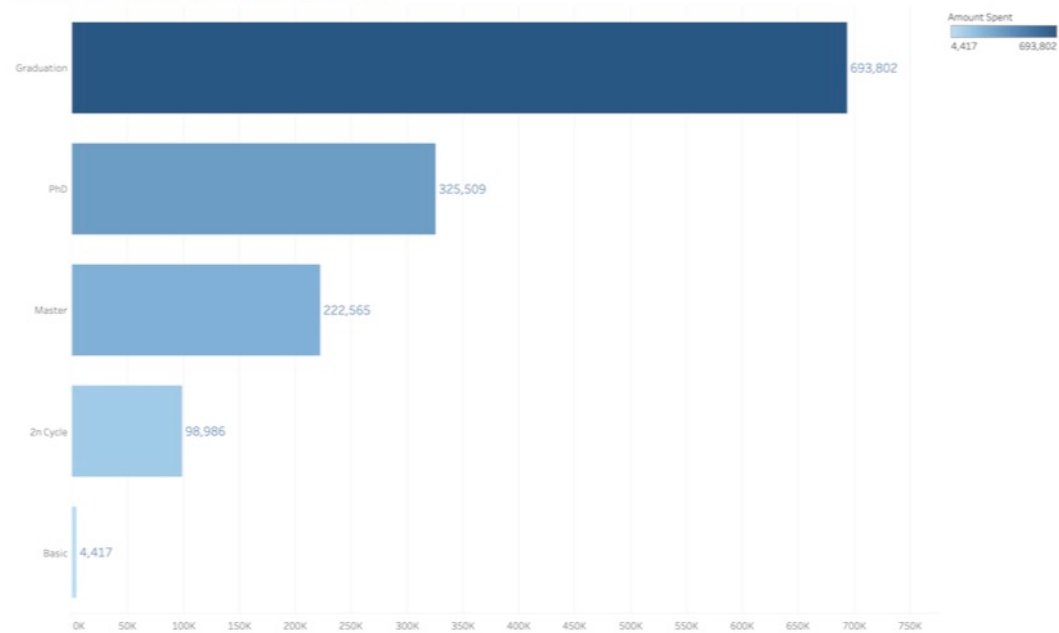
In the above queries, I used the following techniques:

- Identified **ID** is the primary key to joining records from both datasets.
- Applied an INNER JOIN to combine marketing and ad data where matching IDs exist.
- Used the WITH clause to define temporary tables for cleaner, modular queries.

Charts:

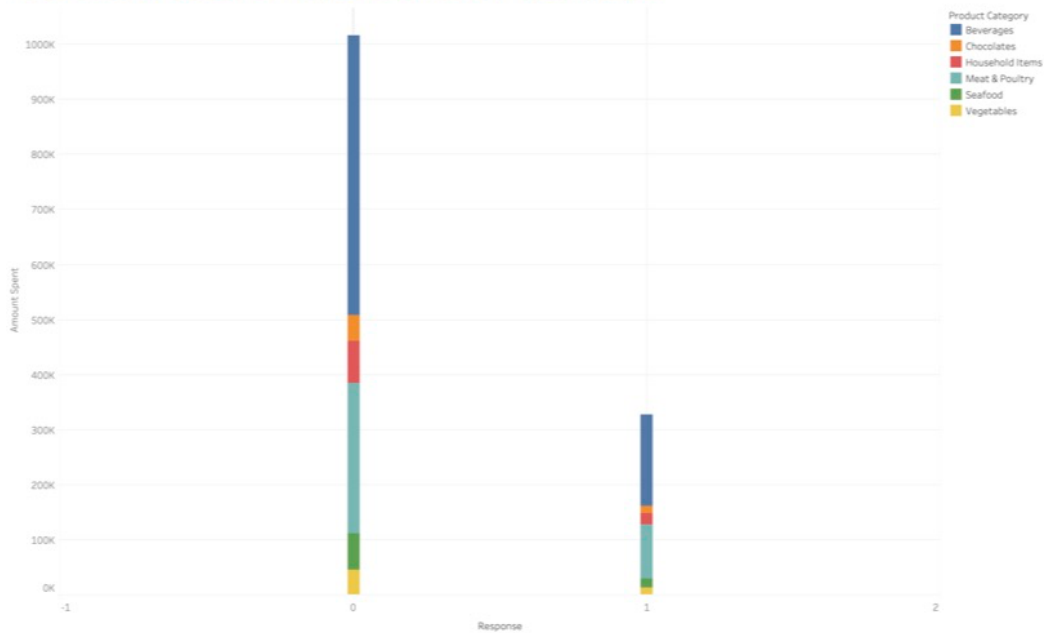
- Below Charts are the example of the charts that were created in Tubule :

Customer Sales by Education Level



Sum of Amount Spent for each Education. Color shows sum of Amount Spent. The marks are labeled by sum of Amount Spent. The data is filtered on Action (Product Category), which keeps 6 members.

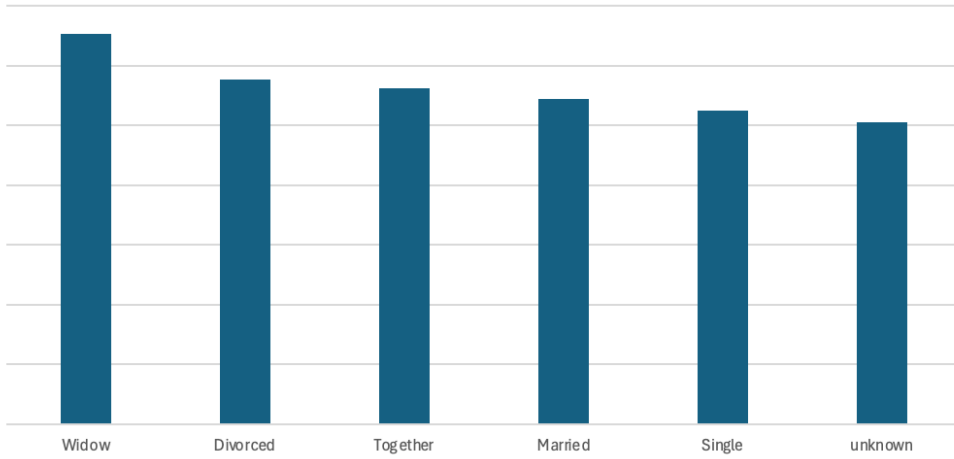
Total Sales by Customer Response to Marketing Campaigns



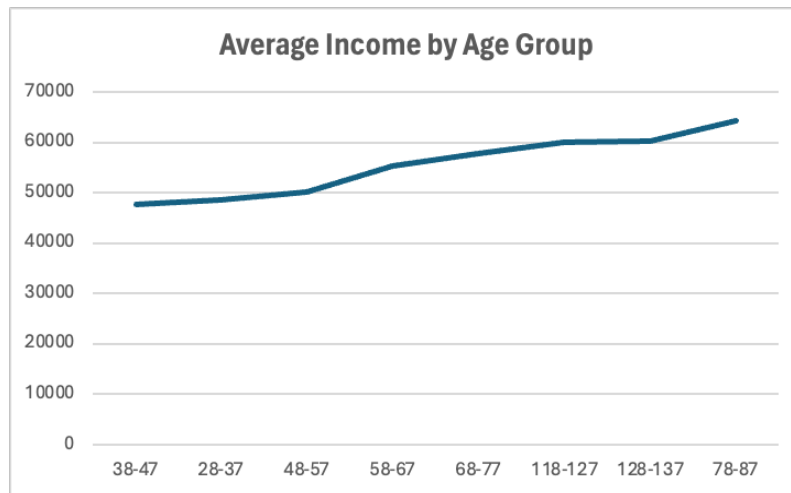
The plot of sum of Amount Spent for Response. Color shows details about Product Category. The view is filtered on Product Category, which keeps 6 of 6 members.

- Below the charts were created by Excel:

Average Age by Marital Status



Average Income by Age Group



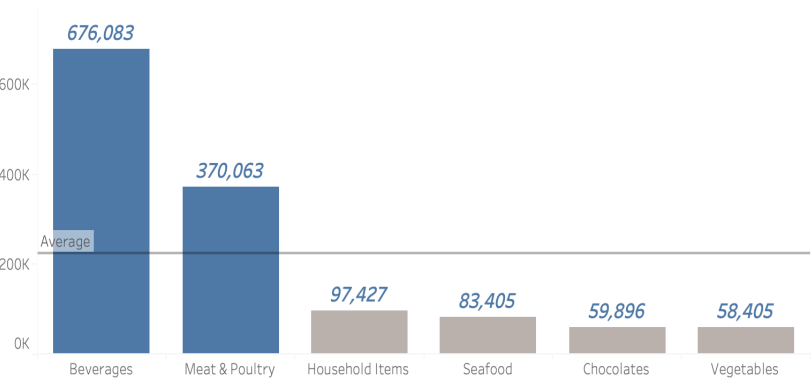
Dashboard Design & Development

Two Tableau dashboards were developed to address 2Market’s core business objectives:

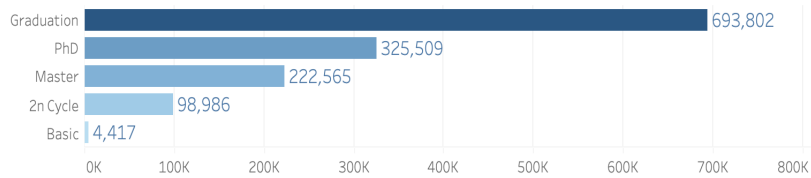
Sales & Customer Insights Dashboard

What Drives Our Sales? Exploring Product, Region, and Demographics

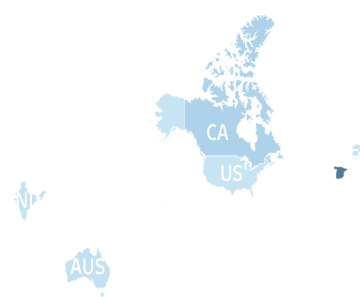
Which Products Are Driving the Most Sales?



Customer Sales by Education Level



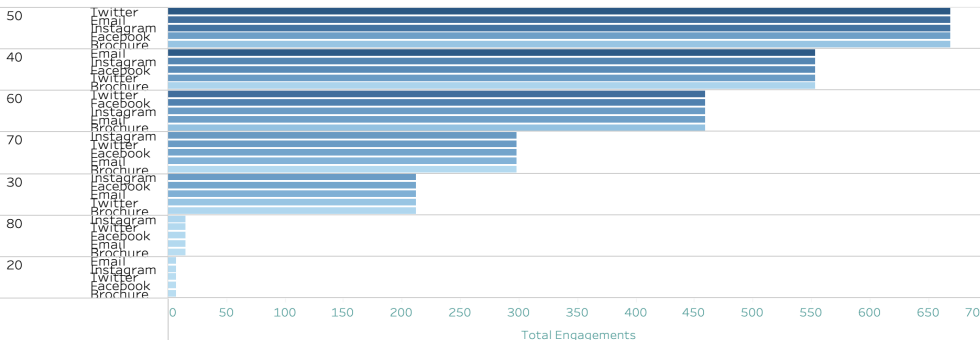
Sales by country



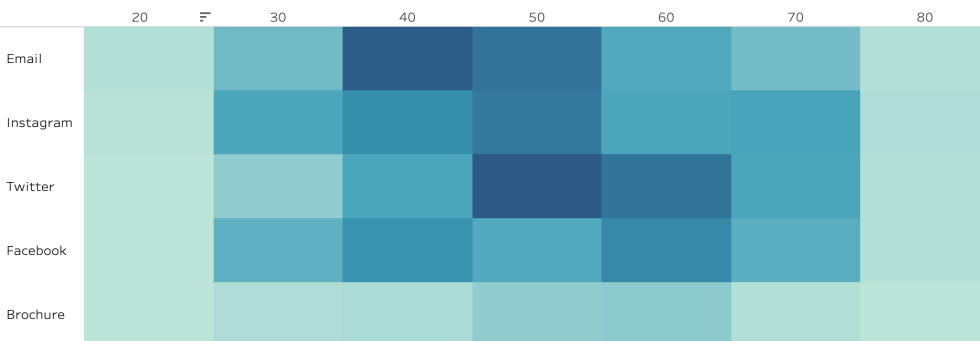
Marketing Performance Dashboard

Are Our Marketing Campaigns Working?

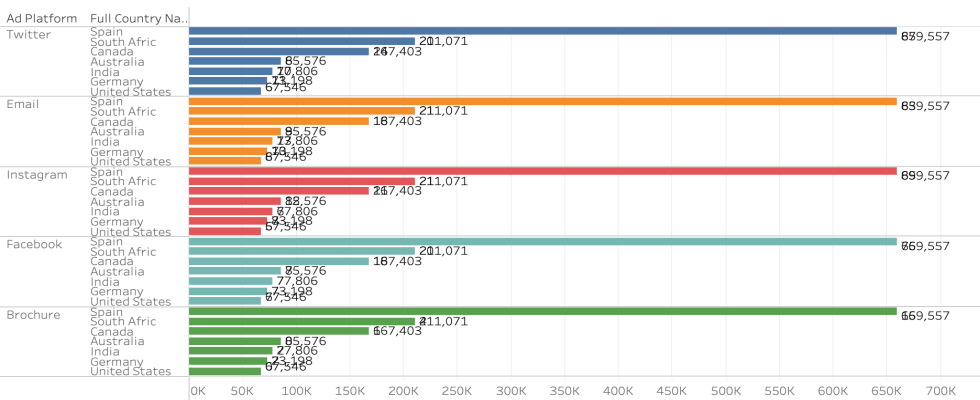
Customer Engagement with Ad Platforms Across Age Groups



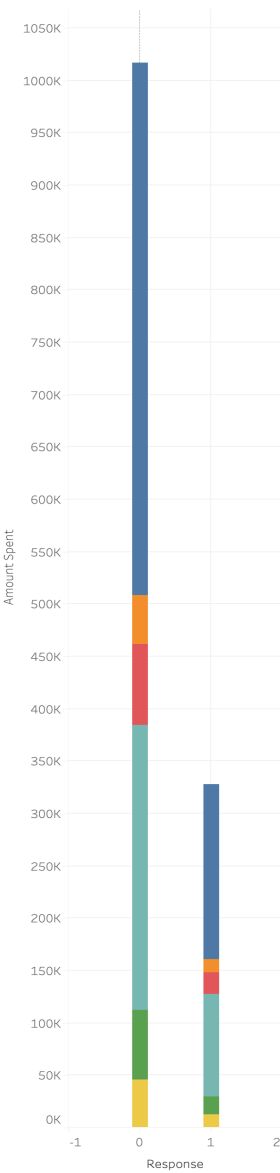
Customer Ad Engagement by Age Group and Platform



Which Ad Platform Drives the Most Sales per Country



Total Sales by Customer Response to Marketing Campaigns



The dashboards were built for internal stakeholders, mainly marketing and business analysts, to provide clear, actionable insights. The first dashboard shows sales performance by country, education level, and product category, using a filled map (with Spain leading) and bar charts to compare spending patterns.

The second dashboard focuses on marketing engagement. A heatmap shows platform usage by age group, highlighting strong performance from Instagram and Facebook among customers aged 30–60. A stacked bar chart reveals most purchases came from non-campaign responders, suggesting a gap in marketing impact. Another bar chart shows platform effectiveness by country.

Design decisions prioritized clarity and accessibility. Consistent color coding, readable axis labels, and tooltips were used for better user interaction. Filters were kept minimal to maintain simplicity while still allowing demographic exploration.

Each dashboard was first sketched by hand before finalizing. The finished design balances detail and clarity, delivering insights without overwhelming users.

Patterns, Trends, and Insights

The analysis revealed several key patterns. Most 2Market customers are aged 48–57, with an average age of 55.2. Income increases with age, peaking in the 78–87 age group. Customers with a Graduation-level education spend the most, followed by PhD and Master's holders.

Geographically, Spain accounts for the highest total spend across all product categories. Beverages and meat are consistently the top-selling categories in almost all countries. Marital status also influences product preference—married customers tend to spend more on household items, while single customers show higher chocolate and beverage spending.

Regarding marketing, Instagram and Facebook are the most effective platforms for lead conversions by country and demographic group. Overall, campaign responses were low, suggesting an opportunity to improve targeting or campaign content. The data also suggests that many customers purchase without responding to campaigns, which warrants further investigation.

Conclusion & Recommendations

Based on the insights gathered, 2Market should:

- Focus future marketing on Facebook and Instagram, particularly in countries where conversions are high.
- Target customers aged 30–60 and segment by education level to improve engagement.
- Explore non-responders' behavior and test new platforms like TikTok.
- Prioritize top-selling product categories (alcohol and meat) in marketing messages.

This data-driven approach provides a clear path to optimizing campaign strategies and maximizing customer lifetime value.